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Calibration Procedures for Radon and Radon-Daughter Measurement Equipment

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Calibration Procedures for Radon and Radon-Daughter Measurement Equipment

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UNITED STATES DEPARTMENT OF THE INTERIOR
Rogers C. B. Morton, Secretary

Mining Enforcement and Safety Administration
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CALIBRATION PROCEDURES FOR RADON AND RADON-DAUGHTER MEASUREMENT EQUIPMENT

by

Robert T. Beckman[1]

ABSTRACT

This Mining Enforcement and Safety Administration publication describes the apparatus and procedures necessary to calibrate the various types of equipment used for radon and radon-daughter measurement. The publication describes air-sampling devices, counting instruments, and other specialized equipment for measuring radon gas and both attached and unattached radon daughters. The use of these standardized calibration procedures is necessary for accurate, uniform measurement of radon and radon-daughter concentrations.

INTRODUCTION

Radon and radon-daughter measurement and control are of increasing concern to many mine operators. Health authorities and mine officials having responsibility for enforcement of radiation standards must be able to make reliable measurements of radiation intensities. The radon-daughter health hazard has been described in detail by several authors (3, 10),[2] but the hazard cannot be adequately assessed unless all components of measurement systems are accurately calibrated. This publication describes calibration procedures presently practiced by personnel of the Radiation Group of the Denver Technical Support Center (DTSC). General calibration methods and instrument tests have evolved through the field and laboratory experience of Bureau of Mines and Mining Enforcement and Safety Administration engineers and other engineers over the past 15 years. Recent improvements in instrument design have allowed several calibration refinements to be developed within the last few years. This is fortunate because the need for measurement accuracy has become increasingly important.

Little has been published describing the different calibration methods and no single publication describes the calibration of all equipment presently used for radon-daughter measurements. This publication describes current calibration procedures for all radon and radon-daughter-sampling equipment

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[1]Mining engineer, Radiation Group.

[2]Underlined numbers in parentheses refer to items in the list of references at the end of this report.

presently in general use in the mining industry, and will serve as a reference for all personnel engaged in this type of sampling.

AIR SAMPLING EQUIPMENT

Radon-daughter concentrations in mine atmospheres are sampled by drawing a known volume of air through a filter capable of removing these daughters from the air. The filters, filter holders, and pumps necessary for this sampling are available commercially from various manufacturers.

Field Equipment

Air pumps used for sampling radon-daughter concentrations should be capable of drawing not less than 2 liters of air per minute through the filter and filter holder selected. The air pumps should be equipped with a flowmeter and flow adjustment for performance evaluation and adjustment during sampling. Desirable pumps are lightweight, portable, and battery powered. The battery-powered pumps should be capable of full-shift operation: generally a total of 15 to 20 samples of 5-minute duration, but more if extensive sampling is being done. The pump must be rugged and capable of withstanding the adverse environment normally found in underground mines. One popular model with charger is shown in figure 1;[3] figure 2 is an exploded view of the pump. Filters selected for radon-daughter sampling are generally 1-inch-diameter filters. Filters presently in use include membrane filters (0.8-micron pore size) and glass-fiber filters; both have high collection efficiencies (99+ percent) and low self-absorption characteristics. Both the collection efficiency and the self-absorption of new types of filters must be tested before these filters are used for routine sampling. The collection efficiency may be tested by careful comparison of repeated simultaneous samples taken from the same atmosphere with the new type filter and one of the present standard high-efficiency filters; filter manufacturers normally publish this data. The self-absorption, a measure of energy attenuation of the daughter particles penetrating the filter, may be measured (1) by sampling a radon-daughter atmosphere and making the following counts:

C_1 = count rate on front of filter

C_2 = count rate on back of filter

C_3 = count rate on front of filter covered by new filter of same type.

[3]Reference to specific brands, equipment, or trade names in this report is made to facilitate understanding and does not imply endorsement by the Mining Enforcement and Safety Administration.

FIGURE 1. - Air-sampling pump with charger.

These three count rates are then substituted into the formula:

$$\text{Self-absorption (percent)} = \frac{C_2 - C_3}{2C_1 + C_2 - C_3} \times 100$$

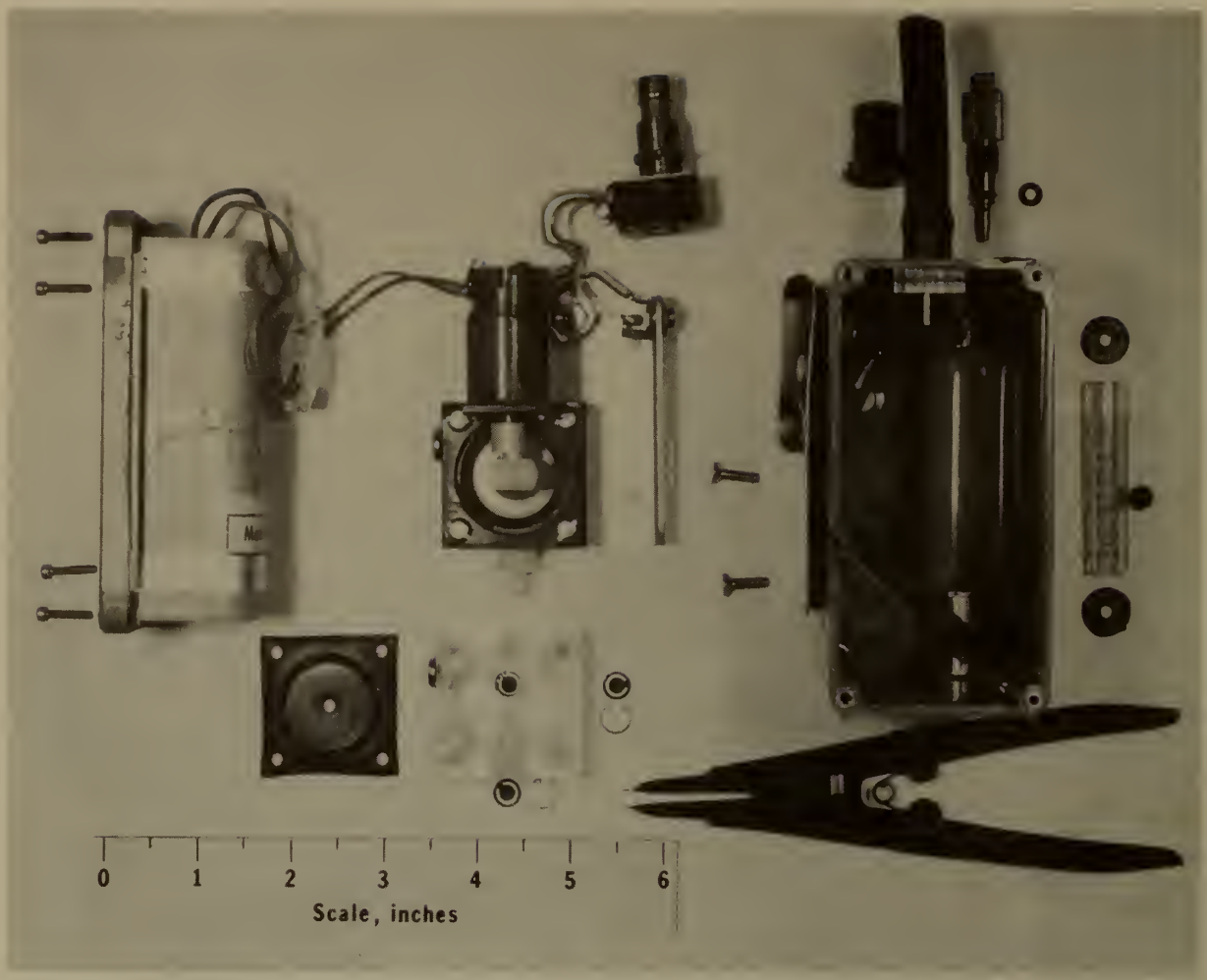

FIGURE 2. - Exploded view of air-sampling pump.

The filter holder used must provide an adequate seal to insure that all air passes through filter. Because various types of filter holders (figs. 3 and 4) have different backup screens (fig. 5) which cause different pressure drops across the filter, the pump must be calibrated for each type of holder even though the filter resistance is normally dominant. The in-line filter holders are normally not used for sampling. For convenience, sufficient holders may be provided to allow several samples to be taken without filter replacement before counting; six filter holders are usually sufficient. Numbered sample envelopes are an alternative method of filter storage. The filter holders must be provided with covers to prevent filter contamination, and with a cap for the nipple to prevent dirt from entering the filter holder and then entering the pump (fig. 6). Normally the filter-holder covers are numbered to preclude the possibility of mixing the samples.

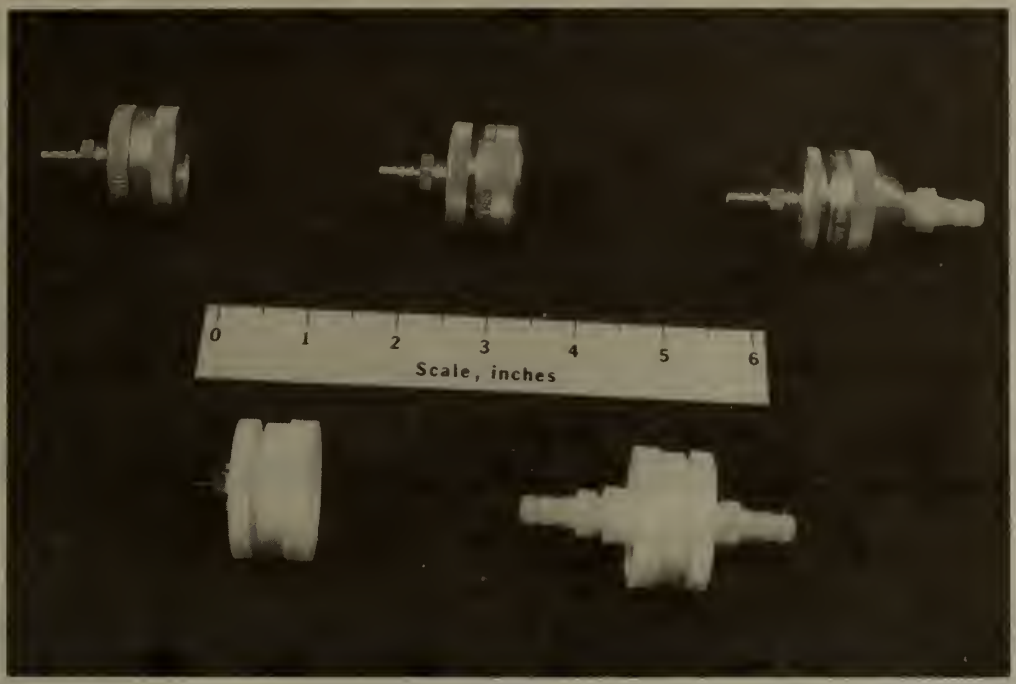

FIGURE 3. - Open-face and in-line filter holders.

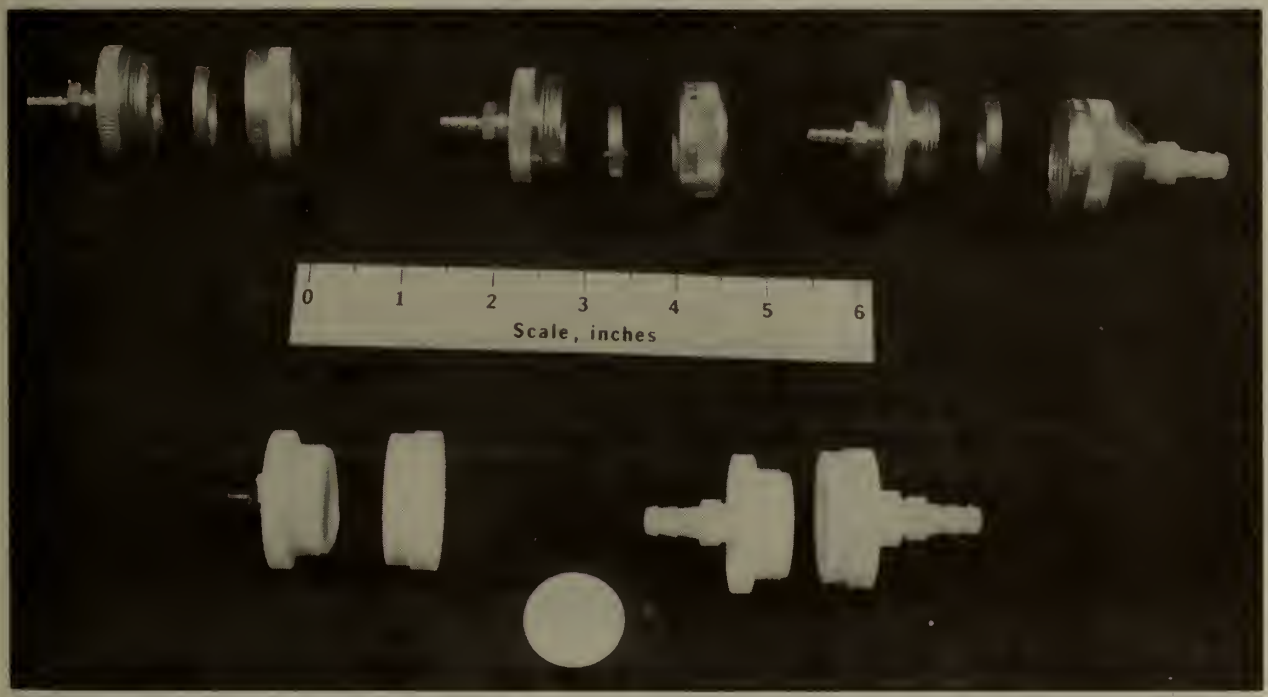

FIGURE 4. - Exploded view of filter holders.

FIGURE 5. - Filter-holder backup screens.

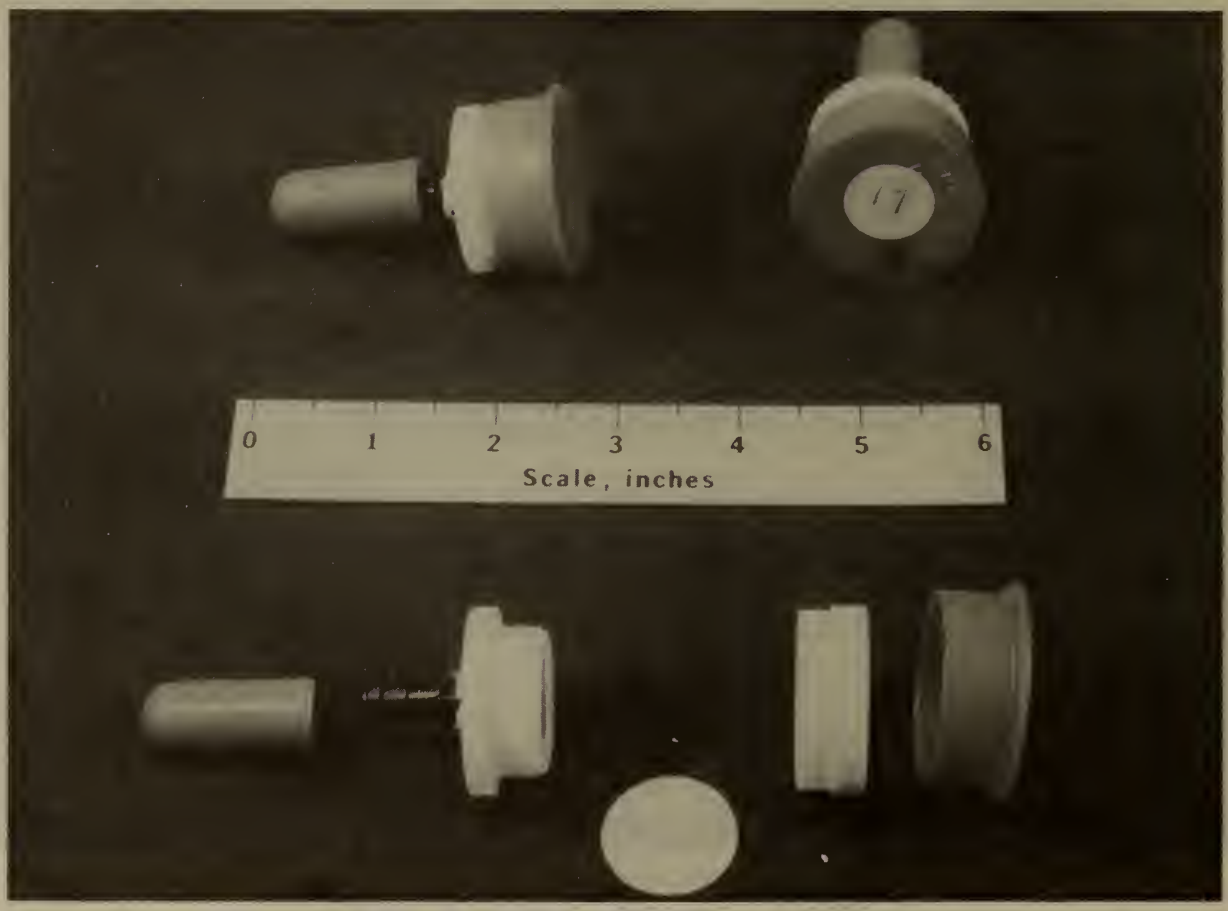

FIGURE 6. - Filter holder with caps.

Calibration Equipment

Equipment necessary for pump calibrations includes a wet-test meter (fig. 7) or bubble tube (fig. 8), an accurate stopwatch, an in-line filter holder, several filters, and the pump to be calibrated.

The wet-test meter must be set up, adjusted, and operated in the manner specified by the manufacturer. Air should be pumped through the wet-test meter for several minutes before calibrations are attempted to insure saturation with air of the water in the wet-test meter.

The wet-test meter measures only the total volume of air, and, therefore, the flow must be accurately timed to determine the flow rate.

Another method of determining total air volume is the bubble tube. This bubble tube is generally a large diameter burette, marked with a volume scale. A soap bubble across the tube will move in a manner to equalize the pressure on both sides of the bubble. By this means, the air volume evacuated by the pump is indicated by the distance traversed by the bubble with reference to the graduated scale of the tube. This method also requires the use of a stopwatch to determine flow rate. The bubble tube is easy to use, relatively inexpensive, and very portable, but does have the disadvantage of being limited in volume. This volume limit requires that time measurement accuracy be quite high: a 1-second measurement error for a 1-liter tube (the normal size) would be equivalent to a 10-second error for the average 10-liter air sample.

The filters and in-line filter holders used for pump calibration must be the same type as those used in the field (9). If more than one filter or filter-holder type is used for field sampling, the pump must be calibrated for each combination.

Calibration Procedure

The normal procedure for pump calibration is to connect an in-line filter holder containing a filter between the outlet of a wet-test meter and the inlet of the pump as shown in figure 7. Prior to calibration, all connections should be tested for leaks. This configuration insures that the wet-test meter is measuring unexpanded air: the high pressure drop across the filter and holder greatly alter the density and velocity of the air. As previously stated, the filter and filter holder must be of the same type as will be used in the field.

After the proper connections have been made, the pump is turned on and the top of or middle of the ball is adjusted to a graduation on the flowmeter as illustrated in figures 9 and 10 such that the total sample volume will be at least 10 liters of air in a 5-minute sample. The total sample volume for a 5-minute period (timed with a stopwatch) is determined; with this volume and time interval, the average flow rate may be determined for that flowmeter setting.

FIGURE 7. - Wet-test meter for volume calibration.

FIGURE 8. - Bubble tube for volume calibration.

FIGURE 9. - Flowmeter indicator, set at "top of ball."

FIGURE 10. - Flowmeter indicator, set at "middle of ball."

Additional calibrations should be made at lower flowmeter graduations to allow compensation for battery drain after a number of samples have been taken. No flow adjustments should be made with the bypass valve furnished on some pumps because return to an identical setting at a later time is virtually impossible; the bypass valve on these pumps should remain closed at all times. Flowmeter settings may be made relative to the top or the middle of the indicator, but whichever reference system is chosen, it must be used consistently. After the calibration is complete, an adhesive label is attached to the pump, listing the type reference setting (top or middle of ball), corresponding flow rate, and date of calibration.

Some samplers prefer to calibrate their pumps such that a 5-minute sample is exactly 10 liters. This calibration is accomplished in the same manner with the only exception being that the flow rate is adjusted until the desired sample volume is pumped in exactly 5 minutes. After calibration, the flow-indicator position is marked on the flowmeter with paint, tape, or adhesive label. With this method, of course, no compensation can be made for reduced battery voltage and the resultant reduction in pumping capacity commonly encountered after extensive sampling.

Calibrations should be performed at the approximate elevations of mine areas to be sampled. Where factors affecting air density are known to be different from those during pump calibration, the following corrections can be applied:

1. For each 10° F drop in air temperature, subtract 1 percent from the indicated sample volume,

2. For each 0.5-inch (Hg) increase in barometric pressure, subtract 1 percent from the indicated sample volume, and

3. For each 500-foot decrease in elevation, subtract 1 percent from the indicated sample volume.

These correction factors are approximate, but are within the accuracy necessary for the small corrections usually required.

American National Standards Institute (1) states that pumps shall be calibrated after receipt of the equipment and at least quarterly thereafter, or whenever any abnormal operation of the pumps and filter train are apparent. This does not preclude more frequent pump calibrations, and many samplers calibrate daily. Pump calibration is relatively simple, and a calibration check requires only a short time once the technique has been mastered.

Field Checks

Pump flow rates may be checked by counting, on a single counter, the radon daughters collected on two simultaneous filter samples taken with different pumps in the same atmosphere with over 0.3 working level (WL) radon-daughter concentration. The counts per minute per liter of air for each sample should agree within 10 percent; a larger discrepancy warrants pump recalibration.

The inexpensive bubble tube is relatively portable and is an excellent method for flow-rate calibration checks.

COUNTING EQUIPMENT

Several types of laboratory and field alpha counters are available; some have more desirable features than others. Scintillation-type detectors are most popular for both laboratory and field instruments; ionization chamber counters have been used, but are no longer popular because of low sensitivity and other considerations. Gas-flow proportional counters are used for laboratory counters in some cases. All of these counters are delicate precision instruments and must be treated as such. Many malfunctions may be traced directly to mistreatment of the instrument.

Field Counters

Both digital scalers with integral timers and count-rate meters, coupled with zinc-sulfide-phosphor detectors, are presently in use as field counters. Three digital scalers and one count-rate meter are illustrated in figures 11, 12, 13, and 14.

FIGURE 11. - Field digital scaler with integral detector. *(Photo courtesy Eberline Instrument Corp.)*

FIGURE 12. - Field digital scaler (Model 20).

FIGURE 13. - Field digital scaler (Model 2200). *(Photo courtesy Ludlum Measurements, Inc.)*

FIGURE 14. - Field count-rate meter.

Detectors

Scintillation detectors function on the principle that an alpha particle striking a zinc sulfide crystal causes a scintillation, or light flash, to be given off by the zinc sulfide. These scintillations are converted to electrical signals by a photomultiplier tube within the detector. The signals from the photomultiplier tube are amplified by a preamplifier and transmitted to the counting mechanism by a connecting electrical cable. The zinc sulfide crystal in the detector is shielded from incident light by an aluminized mylar film, commonly called a "window." The window allows passage of alpha particles but does not allow the entrance of light. For underground counting, the detector must be equipped with a sealable filter receptacle to minimize the high background which may be present because of radon-daughter plateout. Figure 15 is a photo of the components of one popular type of detector.

Digital Scalers

Digital scalers used for field radon-daughter measurements are battery-powered, portable instruments. The scalers are equipped with adjustable high-voltage supplies to furnish operating voltage to the detector and with integral timers to allow preset counting times. Scalers are more versatile than count-rate meters and, by use of the integral timer, can be used to average counts over longer periods of time improving count-rate measurement accuracy. This ability is especially important where low count rates are encountered and will be discussed in more detail in a later section of this report.

Count-Rate Meters

Count-rate meters equipped with scintillation detectors were the first major improvement over the ionization-chamber instruments initially used for radon-daughter measurements. Because scintillation detectors were such an

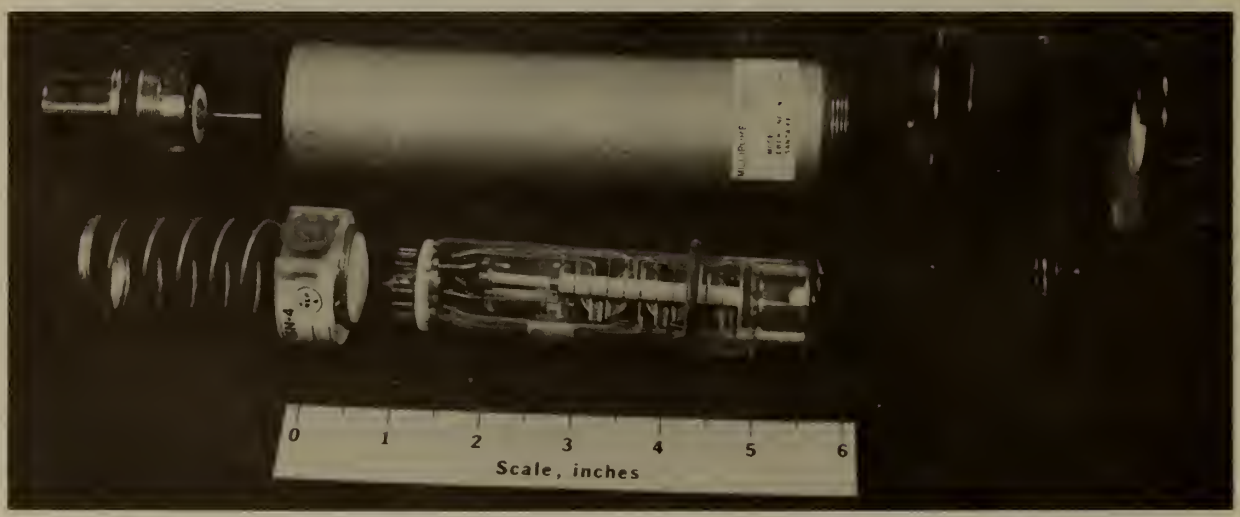

FIGURE 15. - Exploded view of alpha scintillation detector.

improvement over ionization chamber instruments, they were quickly adopted for use by most companies and inspection agencies and are now used widely with count-rate meters. As radon-daughter concentrations become lower, the count-rate meter is becoming less popular because counts cannot be totaled over a longer count time. This shortcoming can be corrected by the attachment of a scaler unit to some pulse-rate meters and the use of a stopwatch for timing the counting interval.

Calibration Equipment

Several items of equipment are necessary to perform satisfactory calibrations of field counters. These items include a laboratory reference counter, a pulse generator, alpha-emitting standards, and a radon-daughter source.

Laboratory Counters

The laboratory counters used for calibration of field counters must have known efficiency for counting RaC'. The primary standard counter maintained by the Radiation Group is not energy dependent and its counting efficiency is determined with accurate Am-241 standards. This counter is then used to calibrate other calibration units every 6 months. The counting efficiency is related to several factors: geometry, energy dependence, pulse-pair resolution, and power-supply stability. These factors are automatically compensated for when the laboratory counter efficiency is determined, but changes in any of these factors will change the efficiency of the counter somewhat. The efficiency of the counter may be given as either 2-pi or gross (4-pi) efficiency. The 2-pi efficiency is the efficiency of the counter in measuring those alpha particles emitted toward the detector from a filter sample or alpha standard. The gross efficiency is the efficiency in measuring all alpha particles emitted.

The gross efficiency will always be about 50 percent of the 2-pi efficiency for a thin radioactive source such as those being discussed; half of the alpha particles are emitted toward the upper hemisphere and half are emitted toward the lower hemisphere.

The geometry of the counter depends upon the distance from the sample to the detector, the relative diameters of the filter sample and detector, and the shapes of the sample and detector. The further the sample is from the detector, the more the alpha particles are attenuated to the point that they cannot penetrate the mylar window. Detector size and shape, coupled with distance, determine the ability of the detector to count alpha particles emitted from the source at a low angle. Of course, if the detector diameter were substantially smaller than the source diameter, the efficiency would be very low.

Energy-dependent counters are those counters for which counting efficiency varies with alpha-particle energy, which is characteristically different for each radionuclide. Marked energy dependence dictates that low alpha energy sources cannot be used to obtain RaC' efficiencies for the counter; RaC' alpha particles (7.7 MeV) must be used for calibration.

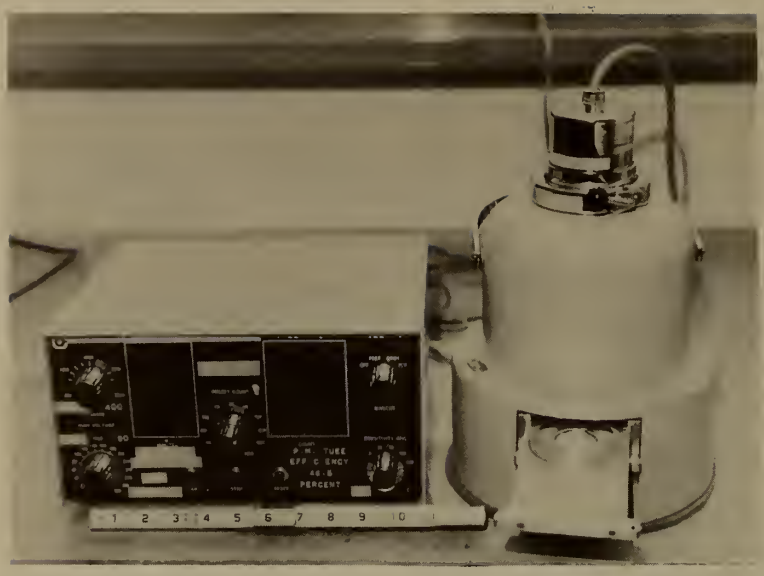

FIGURE 16. - Laboratory scaler with alpha scintillation detector.

FIGURE 17. - Laboratory scaler with gas-flow proportional detector.

Pulse-pair resolution is the ability to distinguish between individual disintegrations occurring fractions of a second apart. Pulse-pair losses are more prevalent at higher rates of activity, and if the counter has a slow resolution time, suitable corrections must be made for coincident events not recorded.

Power-supply stability may be important if the counter is to be used where the power system is subject to variable voltage of fluctuating frequency.

For ease of operation, all laboratory counters should have an integral timer to allow presetting the time or count. The readout must be conveniently and easily read to minimize errors and allow calibration by technicians.

Several counters in use as laboratory counters are shown in figures 16, 17, 18, and 19.

Pulse Generator

Prior to calibration, the linearity of count-rate instruments must be tested with an accurate pulse generator. This generator must have an adjustable pulse rate with adjustable pulse amplitude. The pulse shape should be similar to the shape of the pulse output of the alpha detector to insure proper operation of the counting electronics. One suitable pulse generator is shown in figure 20.

FIGURE 18. - Laboratory scaler with integral alpha scintillation detector (Model SAC-3). *(Photo courtesy Eberline Instrument Corp.)*

FIGURE 19. - Laboratory scaler with integral alpha scintillation detector (Model SAC-4). *(Photo courtesy Eberline Instrument Corp.)*

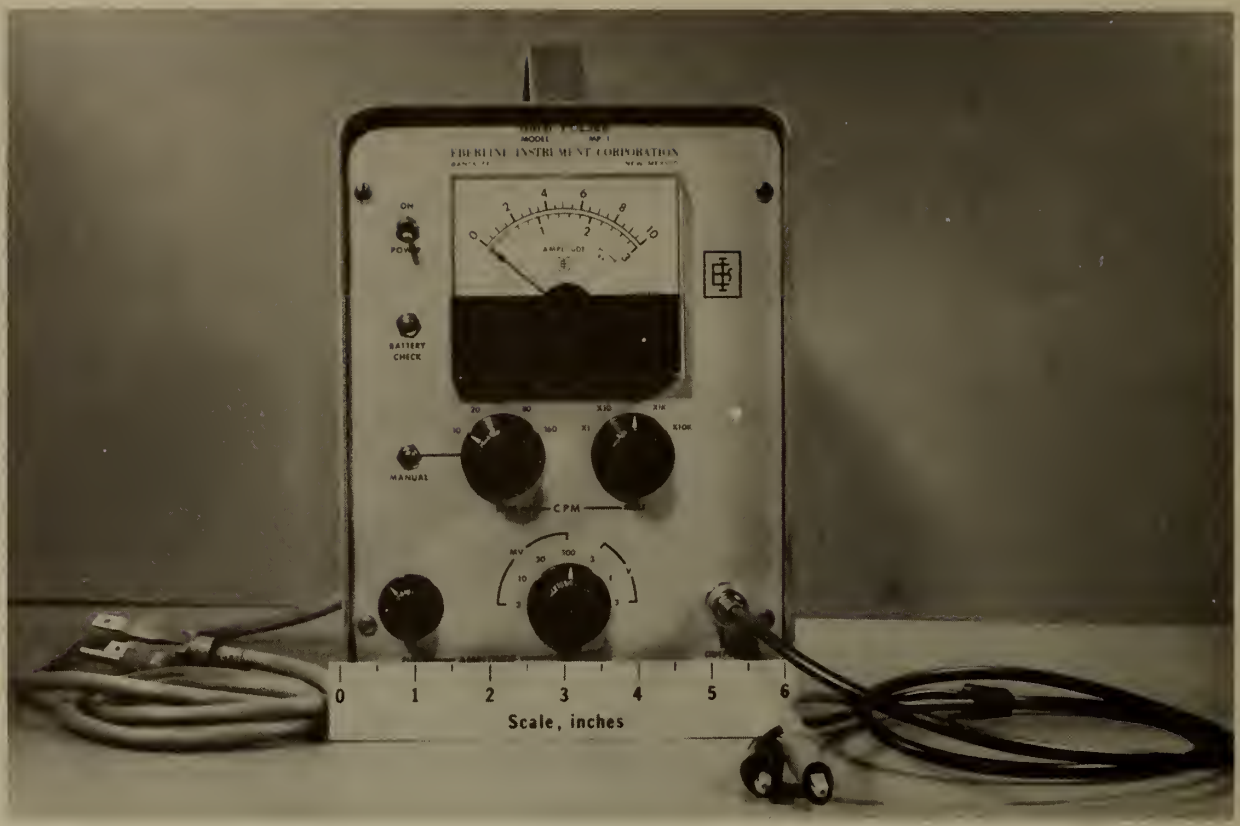

FIGURE 20. - Pulse generator.

Alpha Standards

Calibrated alpha standards, accurate within plus or minus 2 percent at 2-pi geometry, may be purchased from various radionuclide sources.

Several types of standards are available. The standard should have enough activity to give reasonable counting statistics at low count times, but not so high as to create pulse-pair-resolution problems. Standards should have 1000 to 2000 cpm at 25 percent gross efficiency.

Some of the more common alpha-emitting standards with their alpha energies and half lives are given in table 1.

TABLE 1. - Common alpha standards

Radionuclide	Alpha energy, MeV	Half life
Polonium-210 (RaF).....	5.3	138 days.
Radium-226.....	4.8	1,602 years.
Thorium-230.....	4.6	8×10^4 years.
Plutonium-238[1]	5.5	86 years.
Uranium-238.....	4.2	4.5×10^9 years.
Americium-241[1]	5.45	458 years.

[1] Reactor byproduct material, specific license from AEC required for purchase and possession.

Energy-dependent laboratory counters will count the alpha particles of higher energies with higher efficiencies (4). This indicates that counters should not be calibrated with one of the longer-lived standards shown in table 1 for determination of the efficiency in counting RaC' (7.7 MeV alphas emitted). Any of these standards may be used as a reference standard following calibration to verify that the instrument counting efficiency remains stable.

Standards are available in various geometric configurations; the most popular are slightly dished or flat disks, approximately 1 inch in diameter (fig. 21). On most standards, the radioactivity is localized in the center part of the disk and may even be concentrated at the center of the disk. Of course, the size, shape, thickness, and radioactive dispersion all effect the counting geometry, which in turn affects counting efficiency. All standards presently available are geometrically different in several ways from the filters counted in the field.

Standards must be protected from dirt and abrasion. Mishandling the standards with fingers or tweezers may leave oil or dirt on the standard which will attenuate the alpha particles or may remove a portion of the radionuclide

FIGURE 21. - Alpha standards.

by abrasion. Standards are normally shipped in suitable containers and should be stored in these containers when not in use. When the accuracy of a standard is in question, the standard should be returned to the supplier for cleaning and restandardization.

Radon-Daughter Source

The calibration of field counters with RaC' (7.7-MeV alpha particles, 164-μsec half life) requires a radon-daughter source reasonably near to the calibration equipment. This radon-daughter source need not be elaborate; an airtight barrel or box containing broken uranium ore is sufficient. The container should have a small hole, kept closed except during use, suitable for withdrawal of an air sample with either an in-line or open-face filter holder. The container should not be stored in an unventilated area or in the counting area because a buildup of radon and radon daughters in these areas may occur.

Calibration Procedure

All field instruments must be calibrated to determine the relationship between the counts per minute indicated and actual disintegrations per minute occurring from RaC' collected on a filter paper before the counter can be used to determine radon-daughter concentrations. This calibration is normally accomplished by counting RaC' collected on a filter alternately in a laboratory counter of known RaC' efficiency and in the field counter. The counts per minute obtained on the laboratory counter are converted to disintegrations per minute which are then plotted against decay time to obtain the decay curve of the sample. Because of the nature of radioactive decay, this decay curve will be very nearly a straight line if plotted on semilogarithmic graph paper, disintegrations per minute being plotted on the logarithmic scale and time on the linear scale. This decay curve is then used to determine the disintegrations per minute corresponding to the counts per minute obtained with the field counter. Corresponding disintegrations per minute for each counts per minute reading of the field counter are used to calculate the efficiency for that reading. After efficiency computations have been made for all of the field counter readings, the average efficiency is determined and used as the gross counting efficiency of the field instrument.

The calibration procedure may be divided into three general phases: precalibration adjustments, comparative counting, and data treatment.

Precalibration Adjustments

Before calibration of any field instrument, several tests and adjustments must be made to insure proper instrument operation. The most significant of these tests and adjustments are linearity and high voltage, but any other necessary adjustments or repairs must also be made before actual calibration is commenced. Adjustments of the instrument during or after calibration, may result in a change in counting efficiency.

Linearity

The linearity of the instrument response is tested by use of the pulse generator previously described. Linearity is most critical for rate meters because any deviation from proper pulse counting by digital scalers is usually linear and the result of an inaccurate timer. The linearity is tested by removing the alpha-scintillation detector and substituting the pulse generator. The pulse-generator output is adjusted to a suitable pulse rate and the counts per minute is read on the meter or scaler. The pulse rate of the pulse generator is reset to another suitable rate and the counts per minute is again read. The suitable rates are determined in accordance with the type of instrument being tested. Digital scalers require two or three different rates in the range of 50 to 2000 cpm while pulse-rate meters require pulse rates near the midpoint of each scale. Care must be taken with pulse-rate meters to allow sufficient time for meter indicator stabilization. Some models of pulse-rate instruments are adjusted so that the meter reads twice the actual pulse rate. This adjustment allows better meter response at low count rates. Any linearity adjustments, as indicated as necessary by the testing, should be made in accordance with the manufacturer's instructions. The adjustment potentiometers and adjustment instructions for one count-rate meter are shown in figure 22.

FIGURE 22. - Linearity adjustment potentiometers of count-rate meter.

High Voltage

All detectors must have a relatively high voltage applied for the detector to operate properly. Each detector is unique in counting response at any voltage. Figure 23 illustrates a typical response curve for an alpha scintillation detector; the midpoint of the plateau (flat portion of curve) determines the desirable operating voltage of the detector.

The plateau of the operating curve is determined for each detector prior to calibration by reducing the high-voltage control on the counter to the minimum possible, then incrementing the voltage by equal steps, and recording the count rate obtained with

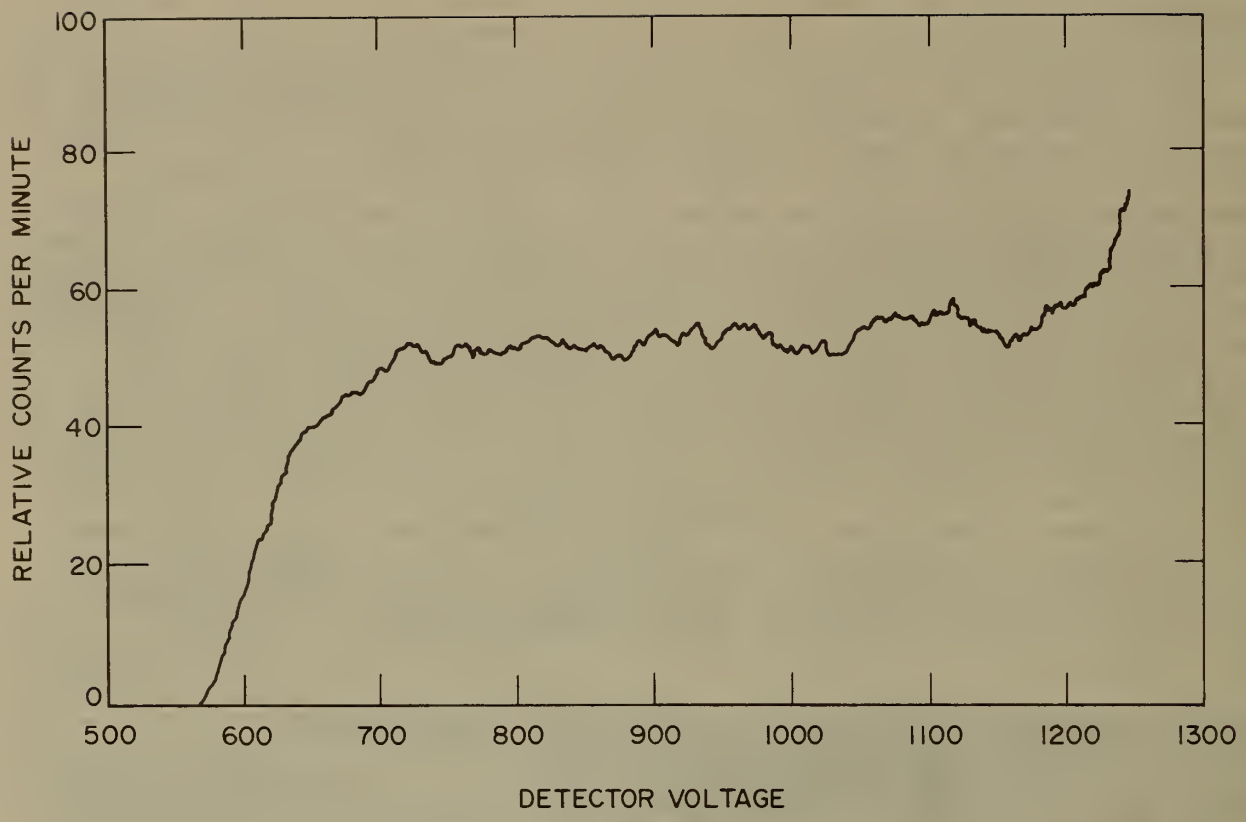

FIGURE 23. - Detector response curve.

(Drawing from Eberline Instrument Corp.)

a standard source for each incremental step. A plot of voltage versus counts per minute quickly delineates the curve plateau. The high-voltage control is then set at the voltage of the approximate midpoint of the plateau. This insures that the detector is operating in a stable range, even with minor voltage fluctuations; however, any movement of the high-voltage control or interchange between detectors and counters requires recalibration before the unit can be used for accurate measurement of radon-daughter concentrations. The high-voltage adjustment essentially pairs the detector with the counter and that specific detector must remain with that counter, at least until recalibration. Any repair will necessitate high-voltage readjustment and recalibration.

Other Adjustments and Tests

Other adjustments and tests necessary before calibration vary with the type of counter and detector being calibrated. Among these are the discriminator adjustment, battery test, gas-flow adjustment (for gas-flow proportional counters), and any other tests or adjustments recommended by the manufacturer. All of these tests and adjustments must be made in accordance with the procedures recommended by the manufacturer.

Comparative Counting

After all tests and adjustments have been made on the field instrument, the comparative counting of RaC' necessary for actual calibration may begin. This counting requires some consideration of the statistical aspects of counting, and the sample must be properly collected and aged before counting.

Statistical Considerations

Statistical errors in counting result from the random time distributions of the disintegrations of any radionuclide; these errors may be calculated by means of simple statistical formulas with the only variable being the total number of disintegrations detected. The larger the number of disintegrations detected, no matter what the time, the smaller the statistical error possible in counting a sample. Generally these formulas cannot be applied to count-rate meters because the time cannot be varied.

The theoretical standard deviation for a single observation is defined as:

$$\sigma = \sqrt{n},$$

where σ = standard deviation

and n = number of counts (15).

And for a count-rate meter,

$$\sigma = \frac{1}{\sqrt{2aRC}},$$

where a = count rate

and RC = time constant of instrument (6).

True count will fall within $n \pm \sigma$ 67 percent (67-percent confidence interval) of the time, within $n \pm 2\sigma$ 95 percent of the time, and within $n \pm 3\sigma$ 99 percent of the time. Normally, a ±5-percent error within the 95-percent confidence interval is acceptable for field radon-daughter measurements.

This then may be stated as

$$n \pm 2\sigma = n \pm 0.05n$$

Substituting, $n \pm 2\sqrt{n} = n \pm 0.05n$

subtracting n, $2\sqrt{n} = 0.05n$

dividing by $0.05\sqrt{n}$, $\frac{2}{0.05} = \frac{n}{\sqrt{n}}$

dividing, $40 = \sqrt{n}$

and squaring both sides, $n = 1{,}600$

Therefore, at least 1,600 counts are necessary to maintain ±5 percent accuracy at the 95-percent level. If the count rate for the sample is 2000 cpm, then a 1-minute count will be sufficient. However, if the count rate for the sample is only 500 cpm, then a 4-minute count should be made. Table 2 illustrates the range of counts necessary for various acceptable errors and confidence intervals.

TABLE 2. - Total counts necessary for various acceptable errors and confidence intervals

Error, percent	Confidence interval, percent	Number of counts	Error, percent	Confidence interval, percent	Number of counts
10	67	100	5	99	3,600
10	95	400	1	67	10,000
10	99	900	1	95	40,000
5	67	400	1	99	90,000
5	95	1,600			

Sample Collection

The sample is collected from the radon-daughter source, generally with an in-line filter holder and a filter of the type used in the field. The sample should have an activity range of the majority of the actual samples taken in the field; generally a count of 3000-4000 cpm, counted immediately after sampling is about the level of activity desired for general calibrations. If a substantial number of the field samples normally counted are very high, a more active calibration sample may be necessary.

Experience with a particular radon-daughter source is necessary to estimate the sample interval necessary to achieve the desired count rate; lacking experience, several samples may be taken for various times in the hope that one of the samples will have approximately the desired count rate. Times from a few seconds to several minutes may be necessary to obtain the desired sample activity. If the activity of the filter is still too low, even after sampling for several minutes, the activity of subsequent samples can sometimes be increased by introducing condensation nuclei, usually as some type of smoke, into the radon-daughter source chamber.

Calibration samples should not be physically altered by cutting or trimming to obtain a satisfactory count rate. Any alteration of this type will change the geometry of the sample and, hence, give erroneous counter efficiencies. After collection, the sample must be aged at least 30 minutes to allow decay of the RaA collected; this insures that all alpha particles will be from RaC' (7.7 MeV).

Counting Procedure

The filter is counted alternately in the laboratory counter and the field counter, recording the counts and the time of each counting. For 1-minute counts, the starting time for the count is recorded; for longer times, the midtime of the count is recorded. Figure 24 is a form used at DTSC to record

calibration data. The time is normally recorded to the nearest minute as read from a stopwatch started at the end of the sample, but any convenient starting time may be used so long as the sample has aged at least 30 minutes.

The normal counting sequence is to alternate counts between the laboratory counter and field counter (or rotate the counts if more than one field counter is being calibrated). If only one field counter is being calibrated, paired observations may be made to eliminate the necessity of determining the

Field Instrument Calibrations
Denver Technical Support Center

Laboratory Counter No. 2
Gross efficiency 33 percent

Run No. 2, Date 10-24-72
By G.L.C.

Time, Min.	Laboratory Counter		Field Rate Meter Meter No. 606			Field Scaler No. 1600		
	cpm (read)	dpm (calc)	cpm (read)	dpm (from curve)	eff. fact.	cpm (read)	dpm (from curve)	eff. fact.
30	1195	3621						
32			2350	3755	1.60			
33						1116	3700	3.32
35	1094	3316						
37			2250	3450	1.53			
38						1048	3400	3.24
40	1119	3391						
42			2150	3160	1.47			
43						902	3110	3.45
45	1067	3233						
47			2000	2900	1.45			
48						888	2850	3.21
50	954	2891						
52			1900	2655	1.40			
53						823	2610	3.17
55	873	2645						
57			1750	2440	1.39			
58						783	2390	3.05
60	786	2382						
62			1600	2230	1.39			
63						696	2190	3.15
65	705	2136						
67			1500	2045	1.36			
68						643	2010	3.13
70	641	1942						
72			1350	1870	1.39			
73						558	1840	3.30
75	533	1615						
77			1200	1720	1.43			
78						507	1690	3.33
Averages					1.44			3.24

FIGURE 24. - Calibration-data form.

decay curve and reduce the amount of necessary data manipulation. All odd-numbered pairs would reverse the counting order. With this method, care must be taken to keep the time lapse between paired readings to a small, constant value. Any long or different time lags require that the data be treated as any other calibration; the time between pairs of readings may vary without adverse effects.

The calibration sample is normally counted until the activity has dropped to 100-200 cpm. This insures that the calibration is valid for the range of count rates normally encountered in the field. Calibration at the normal field count rates automatically compensates for pulse-pair resolution, which varies with the count rate. Similarly, integral timers (if the counter is so equipped) should be used to time all sample counts and thus compensate for any errors which might result from timer inaccuracies.

Count-rate meters are more difficult to read accurately (figs. 25 and 26); meter indicator fluctuations and slow response times for some counters require that at least 30 seconds should elapse between placing the sample in the detector and reading the meter. Special care must be taken when reading the meter when the indicator is near a scale-shift point. The average reading is taken as the midpoint of the meter-indicator fluctuation.

Data Treatment

Data treatment generally requires two distinct phases; the data obtained with the laboratory counter is used to determine the decay curve of the calibration sample, and the data obtained with the field counter, in conjunction with the decay curve, is used to compute the average gross efficiency. For paired observations, the decay curve need not be determined, but the average gross efficiency is calculated directly from the relative counts.

Decay Curve

After the comparative counting has been completed, all laboratory-counter readings are converted to disintegrations per minute by dividing by the decimal efficiency or multiplying by the efficiency factor (reciprocal of decimal efficiency). The disintegrations per minute obtained are then plotted against time for that reading; semilogarithmic graph paper is used for this plot because disintegrations per minute on the logarithmic scale versus time on the linear scale should yield a straight line. After all points have been plotted on semilogarithmic graph paper, the best possible straight line is drawn through the points (fig. 27).

If a computer or programable calculator is available, a least-squares curve of the type $y = ax^b$ may be fitted to the data. This curve is a straight line on semilogarithmic graph paper, and the time is substituted for x and the dpm for y. Experience at Denver Technical Support Center has shown that results obtained by judging the best straight line fit between points will compare very favorably with a curve obtained by a least-squares fit of the same data. The computer method does have the advantage of eliminating the tedious calculations and plotting, and allowing the statistical analysis of

FIGURE 25. - Meter of count-rate instrument, four scales.

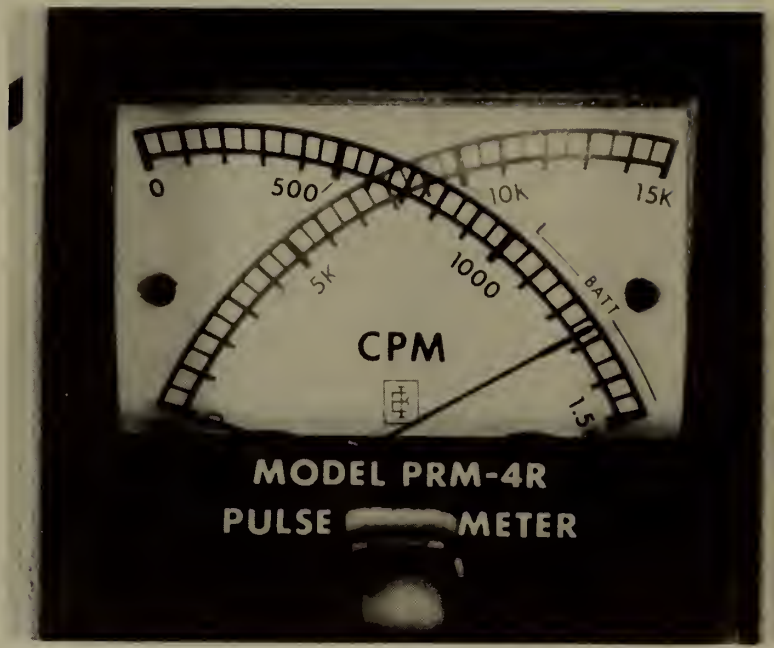

FIGURE 26. - Meter of count-rate instrument, two scales.

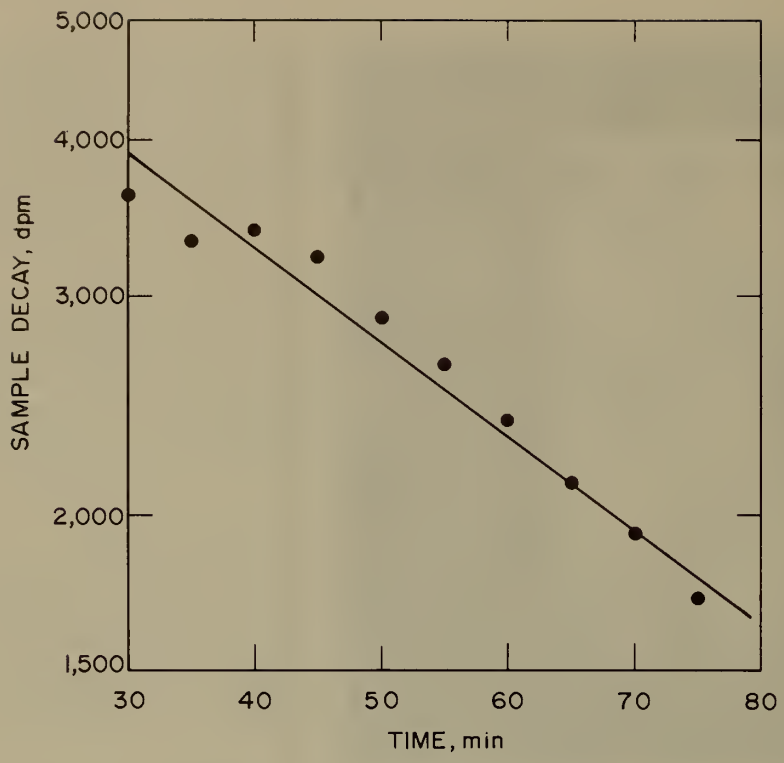

FIGURE 27. - Sample decay curve.

the gross efficiencies. If properly programed, the computer will also indicate the correlation coefficient between data points and the decay curve.

Efficiency Calculations

After the decay curve has been determined, the decay curve and the field counter readings are used to determine gross efficiciency for each reading. The procedure involves only the determination (from the decay curve) of the disintegrations per minute which were occurring each time the field counter was read. These disintegrations per minute are then compared to the counts per minute actually read to determine the gross efficiency for that reading. After all efficiencies have been computed, the average gross efficiency may be calculated. For ease of field-data reduction, the average gross efficiency may be converted to a gross-efficiency factor, which is merely the reciprocal of the decimal efficiency.

Counters which have not been previously calibrated should have at least three calibrations made and the three gross efficiencies should agree within 5 percent of the average. If not, additional calibrations should be made; extremely erratic results generally are an indication of instrument, cable, or detector malfunction.

Counters which have been calibrated within the past 6 months may be assumed to be in calibration if the average gross efficiency does not change from the previous figure by more than 3 percent. If the difference is greater, the instrument should be given the precalibration adjustments and tests just as if it had not been previously calibrated.

Efficiencies for paired observations are determined by first converting the laboratory counter counts per minute to disintegrations per minute, then calculating the efficiency for each pair of observations using the laboratory-counter disintegrations per minute and field-counter counts per minute.

Postcalibration

After the field instrument has been calibrated, the field standard for that counter should be counted several times to arrive at an average count. Count-rate instruments should be read at least 10 times, 30 seconds apart, and digital counters should be operated at least 10 minutes to arrive at the average count rate. This standard, normally Th-230, is then used to check the instrument in the field for continued reliability.

Some samplers prefer to use a precomputed conversion table to determine radon-daughter concentrations in the field. This table may be easily computed by use of the standard Kusnetz formula (5). The table is made for a predetermined sample volume, various desired count rates, and various times. Figure 28 is a reproduction of a table of this type and contains the information normally included in such a table.

A label listing calibration data, efficiency or efficiency factor, person who did calibration, and count rate of the field reference standard should be placed in a conspicuous place on the counter. This label provides a convenient reference for the operator to use in checking for satisfactory instrument calibration.

Chart for determining W.L. with counter No. 606 and M.S.A. sample pump pulling 2.0 L/M. Total volume 5 min. sample of 10 Liters. (Top of ball at 9)

Time Min	Factor	C.P.M. 200	400	600	800	1,000	1,500	2,000	2,500	3,000	5,000	7,500	10,000
40	0.00096	0.19	0.38	0.58	0.77	0.96	1.4	1.9	2.4	2.9	4.8	7.2	9.6
45	0.00102	0.20	0.41	0.61	0.82	1.0	1.5	2.0	2.6	3.1	5.1	7.6	10.2
50	0.00110	0.22	0.44	0.66	0.88	1.1	1.6	2.2	2.8	3.3	5.5	8.2	11.0
55	0.00120	0.24	0.48	0.72	0.96	1.2	1.8	2.4	3.0	3.6	6.0	9.0	12.0
60	0.00130	0.26	0.52	0.78	1.0	1.3	2.0	2.6	3.2	3.9	6.5	9.8	13.0
65	0.00144	0.29	0.58	0.86	1.2	1.4	2.2	2.9	3.6	4.3	7.2	10.8	14.4
70	0.00160	0.32	0.64	0.96	1.3	1.6	2.4	3.2	4.0	4.8	8.0	12.0	16.0
75	0.00173	0.35	0.69	1.0	1.4	1.7	2.6	3.5	4.3	5.2	8.6	13.0	17.3
80	0.00192	0.38	0.77	1.2	1.5	1.9	2.9	3.8	4.8	5.8	9.6	14.4	19.2
85	0.00211	0.42	0.84	1.3	1.7	2.1	3.2	4.2	5.3	6.3	10.6	15.8	21.1
90	0.00240	0.48	0.96	1.4	1.9	2.4	3.6	4.8	6.0	7.2	12.0	18.0	24.0

USE FACTOR FOR CPM NOT SHOWN (WL = CPM x FACTOR)

FIGURE 28. - Precomputed conversion table.

Field Checks

Any instrument which is taken into a field environment must be tested to insure that it is functioning properly. This testing may be accomplished preferably by counting the field standard for that instrument or, if a field standard is not available, by comparison with another calibrated field counter. A background count should be made before using the instrument. The average background should be subtracted from each reading.

Alpha Standards

Alpha standards counting 1000 to 2000 cpm, assigned to each instrument, are the quickest and easiest method of testing the instrument. The standard should be counted immediately before counting each group of actual mine samples. The standard should be used only to test the continuity of calibration of the instrument, not to recalibrate the instrument. The count taken to check the instrument should compare within 10 percent of the count recorded after calibration; greater deviation warrants prompt recalibration.

Comparative Counts

Duplicate counting may be used to verify instrument calibration. The same filter counted in two separate counters should yield the same disintegrations per minute if both counters are properly calibrated. Disagreement of greater than 10 percent warrants recalibration.

SPECIALIZED EQUIPMENT

The radon-gas content of mine air is usually determined by either the two-filter method or the radon-flask method. Both methods are suitable for field use, but the two-filter method has several distinct advantages: rapid results, rugged equipment, ease of operation, and standard counting equipment. Both methods give accurate, reproducible results and the method used generally depends on the equipment available or sampling limitations.

The fraction of uncombined radon daughters is becoming more important in special studies and is generally measured with a special apparatus (8) commonly called a Mercer cell. George (2) has determined that 60-mesh wire screens may also be used to measure the fraction of uncombined radon daughters.

Two-Filter Chambers

Two-filter chambers are used to measure the radon-gas content of air by drawing the air through two fiberglass filters (14) in series, separated by a constant delay volume. The initial filter removes all radon daughters from the air, but allows the radon to pass into the delay volume; the radon decays during this delay; and the resultant RaA is filtered from the air by the second filter. The second filter is counted in a standard digital field counter to determine the amount of RaA formed during the delay. This measured amount of RaA is then used to calculate the amount of radon gas present in the air.

A number of variables affect the sensitivity of the two-filter chamber. Among these variables are chamber volume, sampling time, counting time, and time interval between sampling and counting.

Field Equipment

Field equipment necessary for radon determination by the two-filter method includes the two-filter chamber, a high-volume pump, a digital counter with alpha detector, and an accurate stopwatch.

The chamber designed, fabricated, and used by DTSC has a volume of 900 ml. A high-volume pump is used to draw air through the chamber at a rate of 10 liters per minute (lpm). Sample time and counting time are both 5 minutes, with a 1-minute interval between sampling and counting for transfer of the second filter from the chamber to the detector. Figure 29 is a photo of a partially disassembled chamber, with one model of pump capable of sustaining 10 lpm for a number of 5-minute samples.

Digital field counters used for determinations of RaA on the second filter are identical with those used for field radon-daughter determinations. The counter to be used in the field should also be used for the calibration to eliminate any possibility of error because of energy dependence.

An accurate stopwatch should be used to time the sample and interval between sampling and counting. The instrument timer should be used for the counting time.

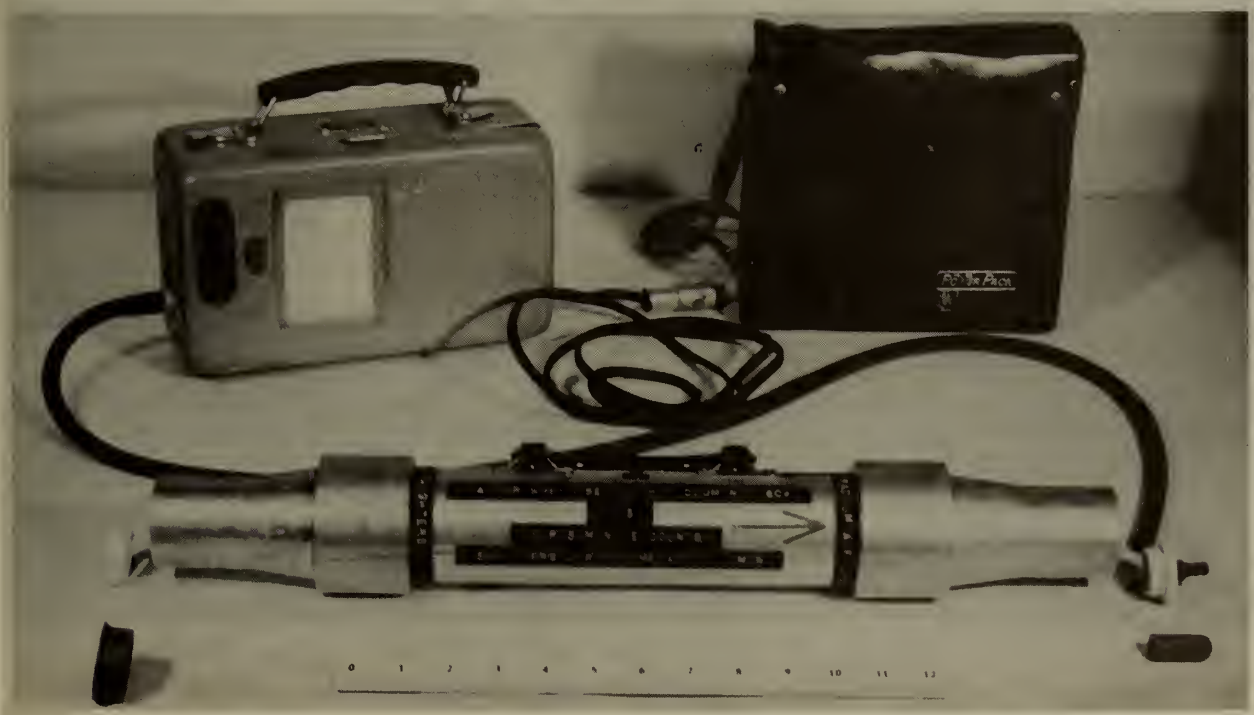

FIGURE 29. - Two-filter chamber with high-volume pump.

Calibration Equipment

A wet-test meter and stopwatch are necessary for flow-rate calibration of the chamber-pump unit. A standard radium-226 solution in a suitable bubbler with appropriate tubing and flowmeters is necessary to calibrate RaA-counting, radon measurement equipment.

The standard radium-226 solution may be obtained from several commercial sources and should contain about 100 μCi of radium-226 dissolved in a volume suitable for the bubbler being used. The radium-226 in the standard solution decays radioactively at a characteristic rate, forming radon-222 gas. For a continuous deemanation, the radon-222 formed by the standard is given by the formula,

$$A_{Rn} = (1-e^{-\lambda t}) A_{Ra},$$

where A_{Rn} = amount of Rn-222 emanated during deemanation (pCi)

and A_{Ra} = amount of Ra-226 in standard (pCi).

This formula holds true only during continuous deemanation after all residual radon has been removed. For a 5-minute sample time, $(1-e^{-\lambda t})$ is 0.00063. Various types of bubblers are acceptable if the radium solution can be completely deemanated.

Figures 30 and 31 are photos of two bubblers presently in use at DTSC; the bubbler in figure 30 was designed by Holaday and others (3) of the U.S. Public Health Service; the bubbler in figure 31 is a gas-washing bottle. The

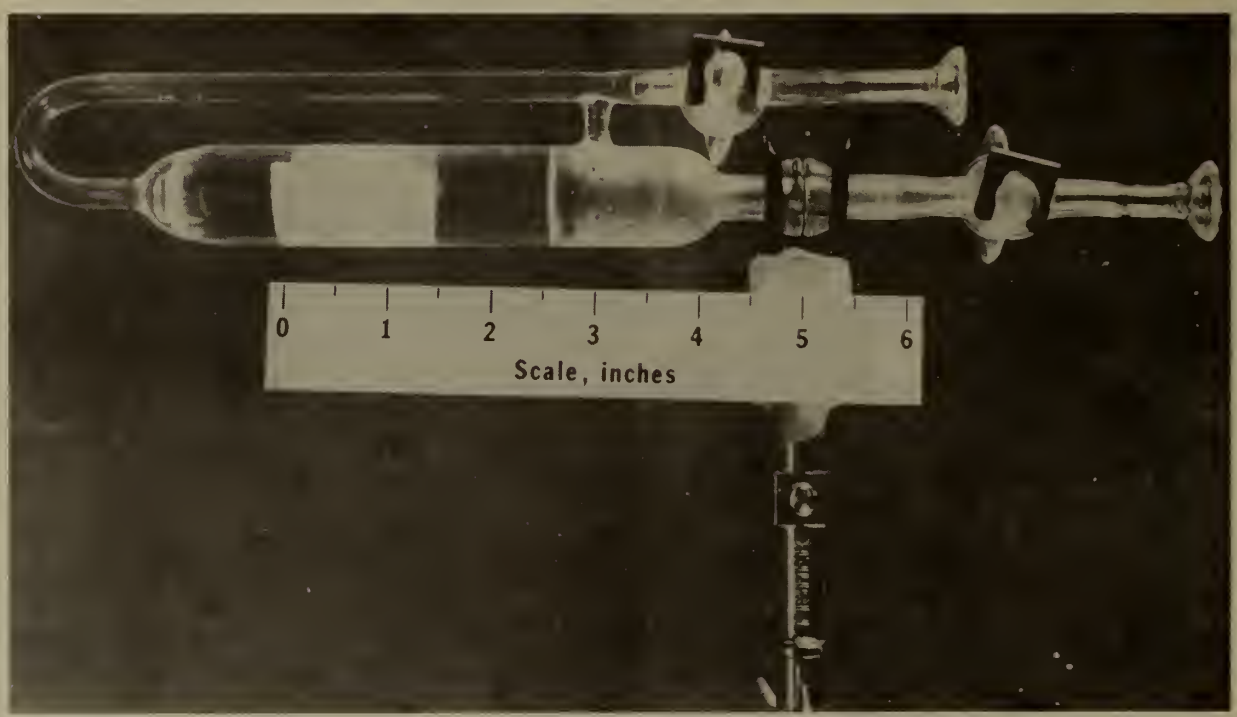

FIGURE 30. - Bubbler for radon deemanation.

FIGURE 31. - Bubbler for radon deemanation (modified gas-washing bottle).

small bubbler shown in figure 30 is designed primarily for flask calibrations, but may be used for two-filter-chamber calibrations if care is taken not to bubble the solution so vigorously that the solution is lost. If the solution is lost, the standard is then unreliable and must be restandardized or discarded.

The gas-washing bottle is more desirable for the two-filter-chamber calibrations because it can sustain high flow rates without solution loss, especially if an antifoam agent is added to the solution. Care must be taken to insure that all of the solution is deemanated.

Figures 32 and 33 are drawings of the apparatus necessary for calibration of the two-filter chamber with each type of bubbler. The large bubbler can accommodate the relatively large flows (10 lpm), but the small bubbler cannot; therefore, provision must be made for the introduction of additional air into the system for the small bubbler. With both systems, care must be taken to insure that the radon-bearing exhaust from the system is not able to reenter the system at the intake or erratic and erroneous results will occur.

The apparatus is arranged to calibrate two chambers simultaneously; this arrangement is made to maintain constant flow through the bubbler when the two-way valves are changed. If only one chamber is available, the pressure drop across the bypass must be adjusted to maintain constant flow for each position of the valves.

Calibration Procedure

Calibration of the two-filter chamber is divided into two distinct phases: the chamber and pump must be calibrated with a wet-test meter to insure the proper flow rate through the unit, and the chamber and counter must be calibrated with a standard radium solution to arrive at the relationship between activity on the second filter and the radon concentration.

The calibration procedure for flow rate is identical with the procedure used to calibrate air-sampling pumps with the exception that the two-filter

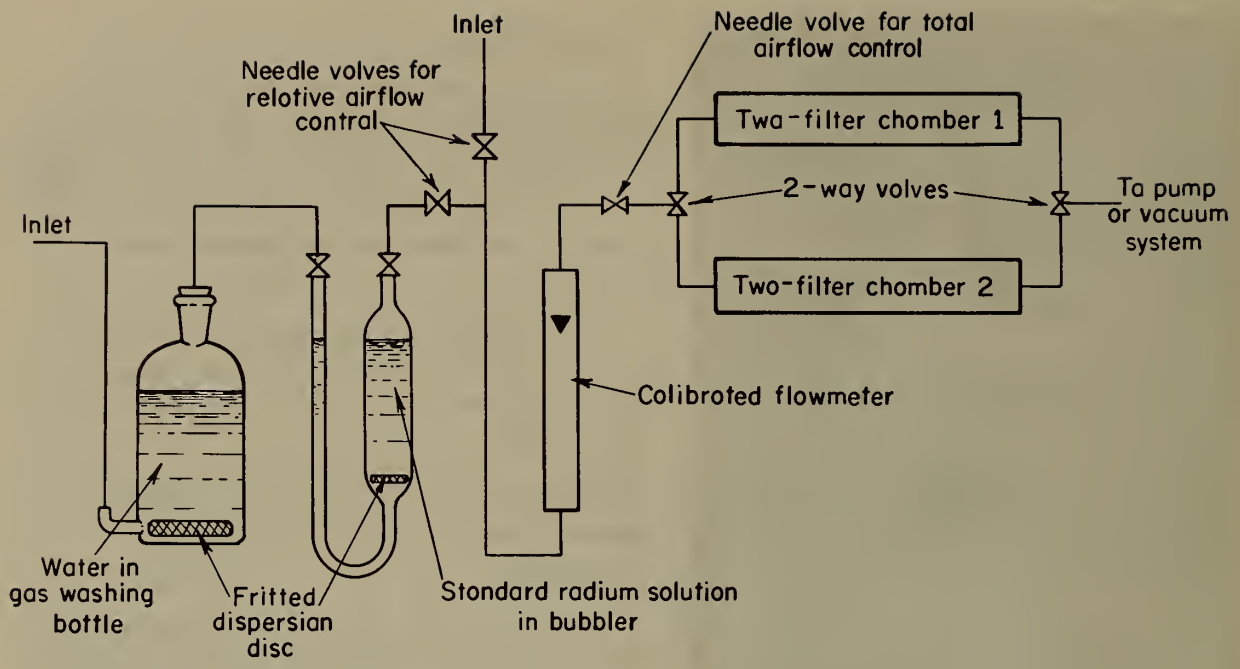

FIGURE 32. - Flowsheet for two-filter-chamber calibration with small bubbler.

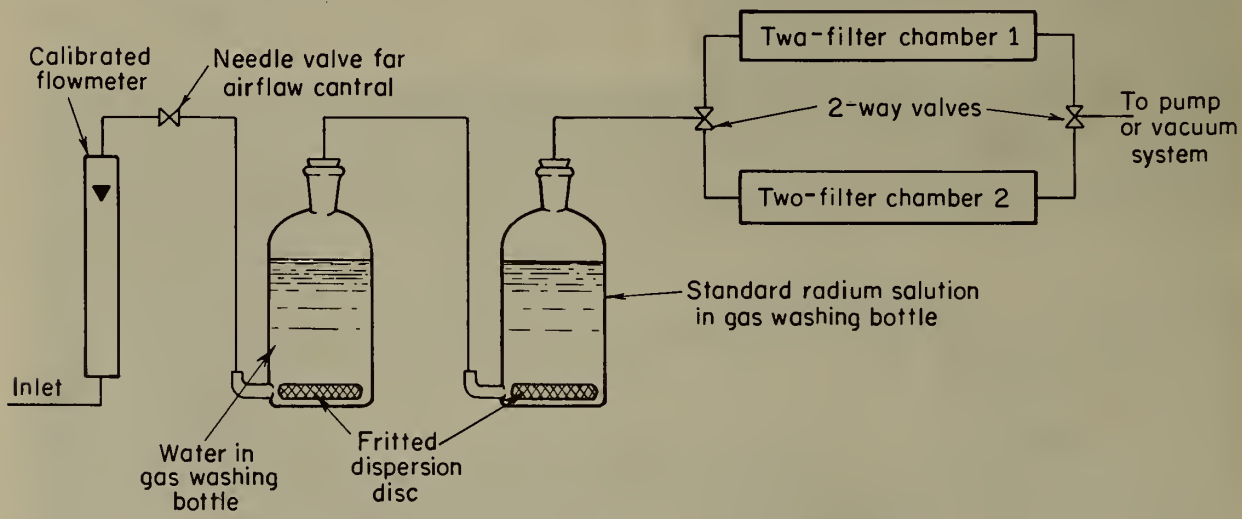

FIGURE 33. - Flowsheet for two-filter-chamber calibration with large bubbler.

chamber, with suitable fittings, is substituted for the in-line filter and the high-volume pump is substituted for the smaller air-sampling pump. The two-filter chamber and pump must be calibrated and used as a unit.

The unit is calibrated for a specific flow rate; different flow rates cause different losses of radon daughters in the chamber by "plate out" or

diffusion. As stated before, the DTSC unit is calibrated at 10 lpm or 50 liters during a 5-minute sample. The pump flow is adjusted, and the flowmeter ball position noted, until exactly 50 liters is pumped through the wet-test meter in exactly 5 minutes.

The calibration procedure to determine the relationship between the radon concentration and activity of the second filter is somewhat more difficult. Prior to any calibration attempt, the standard solution must be deemanated to remove all radon which has been formed while the standard was not being used. This deemanation is normally accomplished by bubbling air through the standard solution for at least 1 hour at the same flow rate as will be used during the calibration. The same apparatus is used for this deemanation, with the air flowing through one chamber or the bypass. After all residual radon has been removed, both two-way valves are changed to allow the radon-bearing air to flow through the chamber being calibrated for exactly 5 minutes at the desired flow rate. At the end of the 5-minute sample, the two-way valves are again changed to allow flow through the second chamber (with new filters inserted) or through the bypass. If two chambers are used, both can be calibrated simultaneously by this procedure. After the 5-minute sample has been passed through the chamber, immediately remove the second filter and place the filter in the detector of the digital scaler paired with this chamber. Exactly 1 minute after the end of sampling begin the 5-minute count on the scaler, timed with the integral timer. During this counting time, the chamber must be prepared for the next sample by removing the first filter, flushing the chamber with a radon-free gas, inserting new filters, and reassembling the chamber. The chamber is now ready for another calibration; the chamber should be calibrated several times to insure that the data are consistent. The chamber factor may be computed by

$$\text{Factor} = \frac{(1-e^{-\lambda t})\ A_{Ra}}{V \times \text{counts}},$$

where Factor = chamber factor,

$(1-e^{-\lambda t})$ = growth of radon from radium,

A_{Ra} = amount of radium in standard solution, pCi,

V = sample volume, liters,

and counts = total counts detected on second filter during 5-minute count.

All factors are then averaged.

Sampling and counting times and procedures for field samples are the same as those for calibration except that the air sample is drawn directly into the chamber. The radon content of the air (pCi/l) is the product of the chamber factor and the counts measured on the second filter.

Radon Flasks

Radon flasks are used to determine the amount of radon in the air by drawing filtered air into zinc sulfide-coated flasks. The radon-air mixture is allowed to age 3 hours thereby permitting the radon daughters to come into equilibrium with the radon. The flask is then counted in a special photomultiplier-tube assembly to determine the amount of radon in the air. Prior to use, each flask must be calibrated with a standard radium source to determine the relationship between observed counts and radon content.

Field Equipment

Field equipment necessary for radon determination by the radon-flask method includes several radon flasks, a filter head with filters, a pump, a digital scaler with photomultiplier-tube apparatus, and an accurate stopwatch.

The radon flasks may be any one of several acceptable types. The Lucas flask (7) is the best, but is probably too expensive and fragile for sustained field use (fig. 34). The flasks normally used for field measurements are

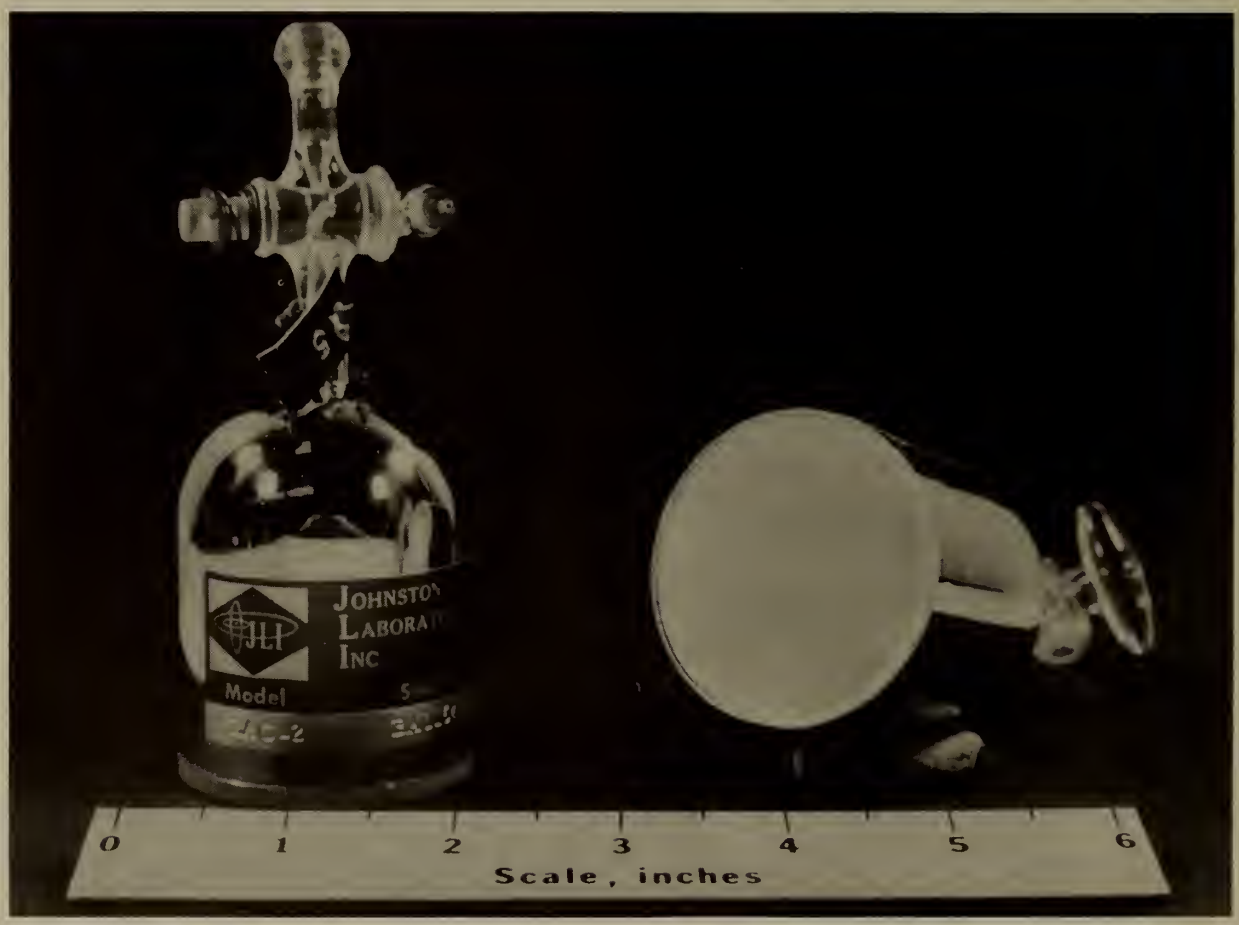

FIGURE 34. - Lucas flasks for radon determination.

standard 125-ml Erlenmeyer flasks which have been coated internally with zinc sulfide (ZnS) phosphor (fig. 35). The inside of the flask is first coated with a solution of grease dissolved in acetone or other suitable solvent. After the flask is completely coated, the excess is poured out and the solvent allowed to evaporate, leaving a coating of grease on the flask. Suitable zinc sulfide phosphor dust is then introduced into the flask and the flask is rotated and shaken until all of the grease has been coated with phosphor. (Zinc sulfide is a toxic compound and must be handled with care.) After all of the grease has been dusted, remove all excess phosphor by inverting the flask; the flask should be shaken in an inverted position to insure that all phosphor in the flask is securely attached to the grease. After the flask has been coated, the two-hole stopper is inserted and sealed. Two tubes are inserted into the two-hole stopper; one should extend 1/2 inch through the stopper (inlet), the other should extend to within 3/4 inch of the flask bottom (outlet). This difference in tube lengths insures complete flushing of the flask when a sample is taken. The long tube should be used as the flask outlet to insure that the zinc phosphor is not blown off the flask. The two tubes into the flask must be equipped with some method of closing the tube; either valves or rubber tubing with clamps are suitable.

The filter head must be attached to the inlet of the flask during sampling and the filters used must be capable of removing all radon daughters from the air. All radon daughters are removed from the sampled air to insure that radon is the only radioactive material entering the flask. In this manner the specific growth curve and initial conditions are known and the flask is not contaminated with long-lived radionuclides.

Any sample pump capable of pumping 1 to 2 lpm through the filter and filter holder used is suitable for filling the radon flasks. If the bottle is flushed with at least 10 bottle volumes, the sampler is assured that the

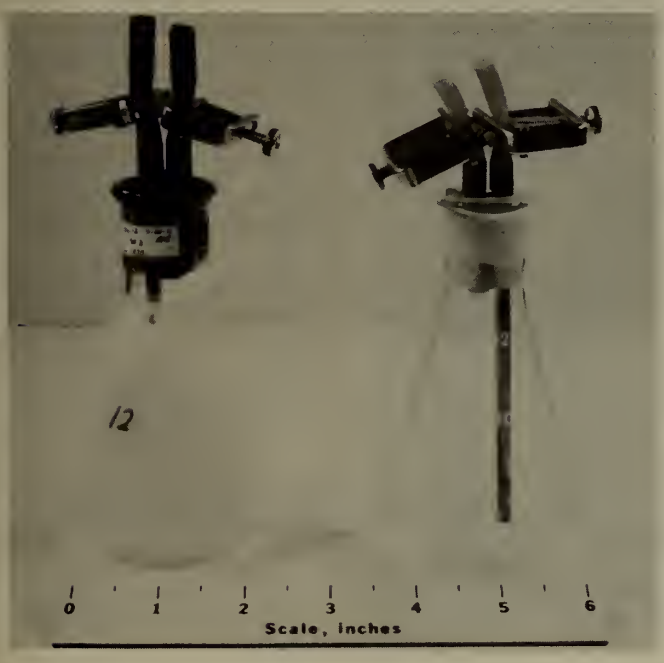

FIGURE 35. - Standard flasks for radon determination, before and after application of phosphor.

FIGURE 36. - Photomultiplier-tube assembly with digital scaler.

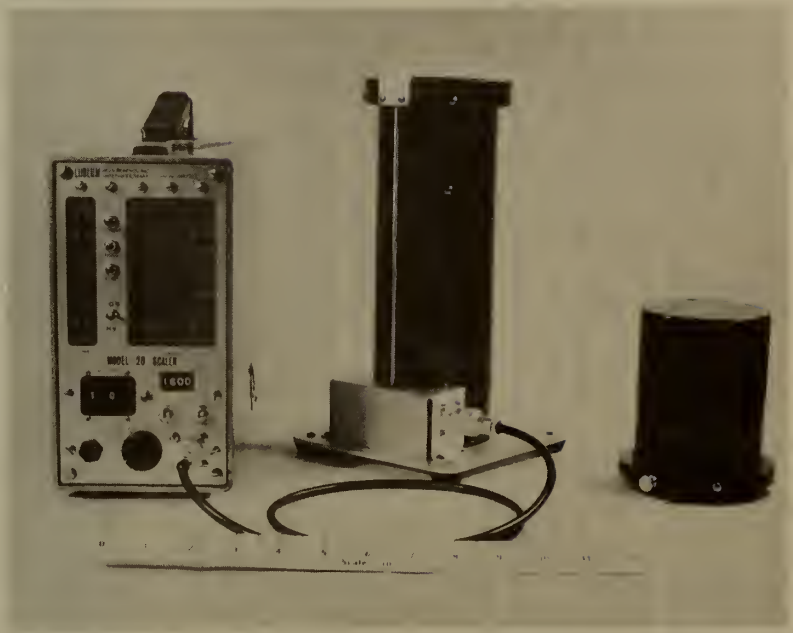

FIGURE 37. - Radon-flask counter.

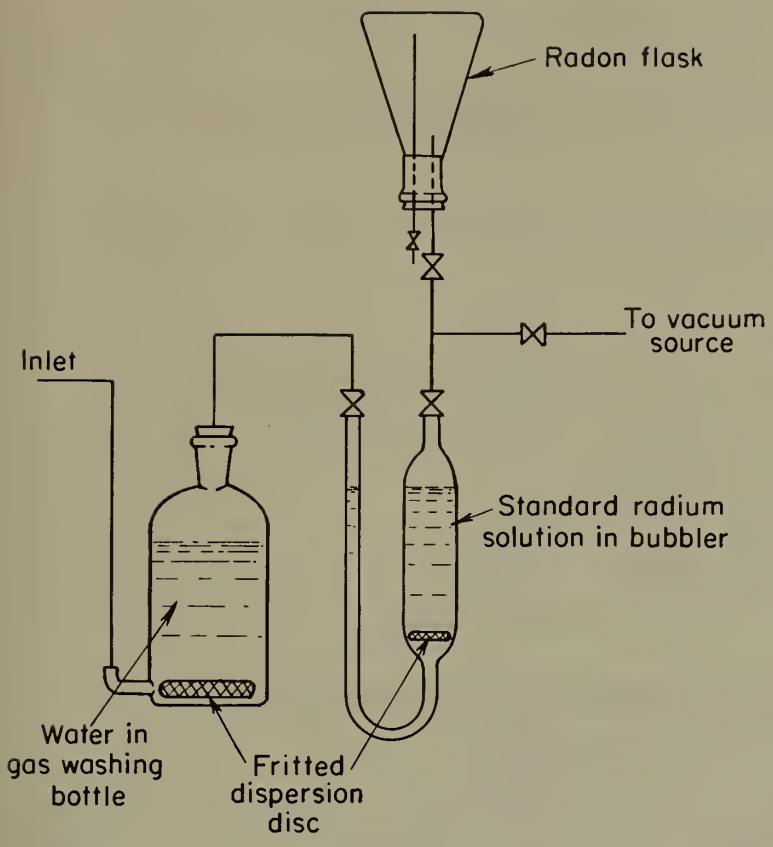

FIGURE 38. - Flowsheet for radon-flask calibration.

sample is representative of the atmosphere being sampled. A 125-ml flask and 2-lpm sample rate would require a 40-second sample.

The digital scaler may be any one of the scalers used for radon-daughter determination, but the detector consists of a photomultiplier in a light-proof enclosure which will accept the flask. The apparatus used by DTSC personnel is shown in figure 36 and another type in figure 37.

Calibration Equipment

A standard radium-226 in a suitable bubbler (fig. 38) is necessary for flask calibrations. The standard radium-226 solution is available from several commercial sources and should contain about 3,000 pCi of radium-226 in a volume suitable for the bubbler being used.

The same formula and method of calculation as was described previously for the two-filter chamber are used to compute the amount of radon-222 formed since the last deemanation. The main difference in calculation is the fact that the deemanation for the two-filter-chamber calibration is continuous, whereas the deemanation for the flask calibration is intermittent. Table 3 may be used to ease the calculations necessary to compute the amount of radon-222 formed since the last deemanation. The amount of radon-222 deemanated is given by

$$A_{Rn} = A_{Ra} \{1 - (e^{-\lambda t}_{min} \times e^{-\lambda t}_{hours} \times e^{-\lambda t}_{days})\},$$

where A_{Rn} = pCi of radon deemanated,

A_{Ra} = pCi of radium in bubbler,

and $e^{-\lambda t}_{min}$, $e^{-\lambda t}_{hours}$, $e^{-\lambda t}_{days}$ = $e^{-\lambda t}$ factors from table 3 for time since last deemanation.

After the amount of radon deemanation is determined, the concentration of radon in the flask may be computed by

$$C_{Rn} = \frac{A_{Rn}}{V},$$

where C_{Rn} = concentration of radon, pCi/l,

A_{Rn} = total radon deemanation pCi,

and V = total volume into which radon is deemanated, liters.

An example may be helpful:

Assume: 3,000-pCi radium source in bubbler, 1 d, 3 h, 10 min. since last deemanation of this bubbler

0.135-1 flask volume
0.025-1 tubing volume

then, the concentration of radon in the flask would be calculated

$$A_{Rn} = 3{,}000 \{1 - (0.83427 \times 0.97760 \times 0.99874)\}$$
$$= 3{,}000 \{1 - (0.81455)\}$$
$$= 556.35 \text{ pCi radon deemanated}$$
$$V = 0.135 + 0.25$$
$$= 0.160\ 1 \text{ total volume}$$
$$C_{Rn} = \frac{556}{0.160} = 3{,}475 \text{ pCi/1 radon in flask.}$$

TABLE 3. - Factors for computation of radon growth[1]

(Based on 3.825 d as half-life of radon)

Units of time	$e^{-\lambda t}$		
	Minutes	Hours	Days
0	1.00000	1.00000	1.00000
1	0.99987	0.99248	0.83427
2	0.99975	0.98501	0.69600
3	0.99962	0.97760	0.58065
4	0.99950	0.97025	0.48442
5	0.99937	0.96295	0.40414
6	0.99925	0.95571	0.33716
7	0.99912	0.94852	0.28128
8	0.99899	0.94139	0.23466
9	0.99887	0.93431	0.19577
10	0.99874	0.92728	0.16333
11	0.99862	0.92031	0.13626
12	0.99849	0.91338	0.11368
13	0.99837	0.90651	0.09484
14	0.99824	0.89969	0.07912
15	0.99811	0.89293	0.06601
16	0.99799	0.88621	0.05507
17	0.99786	0.87955	0.04594
18	0.99774	0.87293	0.03833
19	0.99761	0.86636	0.03198
20	0.99749	0.85985	0.02668

[1]Adapted from reference 11.

TABLE 3. - Factors for computation of radon growth[1] --Continued

Units of time	$e^{-\lambda t}$		
	Minutes	Hours	Days
21	0.99736	0.85338	0.02225
22	0.99724	0.84696	0.01857
23	0.99711	0.84059	0.01549
24	0.99699	0.83427	0.01292
25	0.99686	0.82799	0.01078
26	0.99673	0.82177	0.00899
27	0.99661	0.81558	0.00750
28	0.99648	0.80945	0.00626
29	0.99636	0.80336	0.00522
30	0.99623	0.79732	0.00436
31	0.99611	0.79132	0.00363
32	0.99598	0.78537	0.00303
33	0.99586	0.77946	0.00253
34	0.99573	0.77360	0.00211
35	0.99561	0.76778	0.00176
36	0.99548	0.76201	0.00147
37	0.99536	0.75628	0.00123
38	0.99523	0.75059	0.00102
39	0.99511	0.74494	0.00085
40	0.99498	0.73934	0.00071
41	0.99485	0.73378	0.00059
42	0.99473	0.72826	0.00050
43	0.99460	0.72278	0.00041
44	0.99448	0.71734	0.00034
45	0.99435	0.71195	0.00029
46	0.99423	0.70659	0.00024
47	0.99410	0.70128	0.00020
48	0.99398	0.69600	0.00017
49	0.99385	0.69077	0.00014
50	0.99373	0.68557	0.00012
51	0.99360	0.68042	0.00010
52	0.99348	0.67530	0.00008
53	0.99335	0.67022	0.00007
54	0.99323	0.66518	0.00006
55	0.99310	0.66018	0.00005
56	0.99298	0.65521	0.00004
57	0.99285	0.65028	0.00003
58	0.99273	0.64539	0.00003
59	0.99260	0.64054	0.00002
60	0.99248	0.63572	0.00002

[1] Adapted from reference 11.

The calibration for radon flasks is quite simple but time consuming. The flask, bubbler, and necessary tubing are arranged as shown in figure 38. The flask and tubing are then evacuated with the vacuum pump or vacuum system. After the flask and tubing are evacuated, the valve to the vacuum source is closed and the valve between the bubbler and the flask is opened completely. The other valve on the bubbler is then opened very slowly until the solution in the bubbler is gently agitated by air passing through the solution. This valve may be opened gradually to maintain the gentle agitation as the air gradually fills the flask; at the completion of the deemanation, this valve should be completely open and all bubbling should have stopped. Extreme care must be taken to insure that no solution is forced from the bubbler by violent agitation of the solution.

After the flask has been allowed to "age" for 3 hours, the scintillations in the flask are counted using the photomultiplier tube and scaler. This is accomplished by placing the flask in the photomultiplier-tube chamber, closing the chamber, waiting 5 minutes for the light-activated phosphorescence to stop, and then counting for 5 minutes. A 5-minute count (at least 400 counts) is desirable to insure accurate counting statistics. After the 5-minute count is obtained, the flask factor may be determined; the flask factor is given as pCi/l of radon per count per unit time and may be in either pCi/l/cpm or pCi/l/cps. The pCi/l/cpm unit is more consistent with other counting practices and will be described here.

The flask factor is determined by obtaining the counts per minute (5-minute count divided by five) and then dividing the radon concentration by the count-per-minute value. The flask factors for the 125-ml flasks used at the Denver Technical Support Center are usually between 1 and 2 pCi/l/cpm. After the flask has been counted, all radon gas should be removed from the flask by pumping and the daughters attached to the interior of the flask must be allowed to decay. Normally if radon has been satisfactorily flushed from the flask, a 5-hour wait should be sufficient. To insure that all daughters are decayed before the flask is reused, a background count should be taken. If significant background is measured, the decay curve of the background should be determined. If the background is caused by radon daughters (average half-life of 30 minutes), the daughters may be allowed to decay further or appropriate corrections may be made in the subsequent 5-minute count; if the background is longer lived, appropriate corrections must be made for later counts.

Sampling and counting procedures for field samples are similar except that a pump is used to draw air through a filter into the flask. After the flask is counted, the counts per minute (5-minute count) are determined. The radon concentration is the product of the count-per-minute value and the flask factor.

Mercer Cells

Mercer cells are used to measure the fraction of unattached RaA present in the atmosphere being tested. As the air is drawn through the single stage impactor shown in figure 39 a portion of the unattached daughter products in

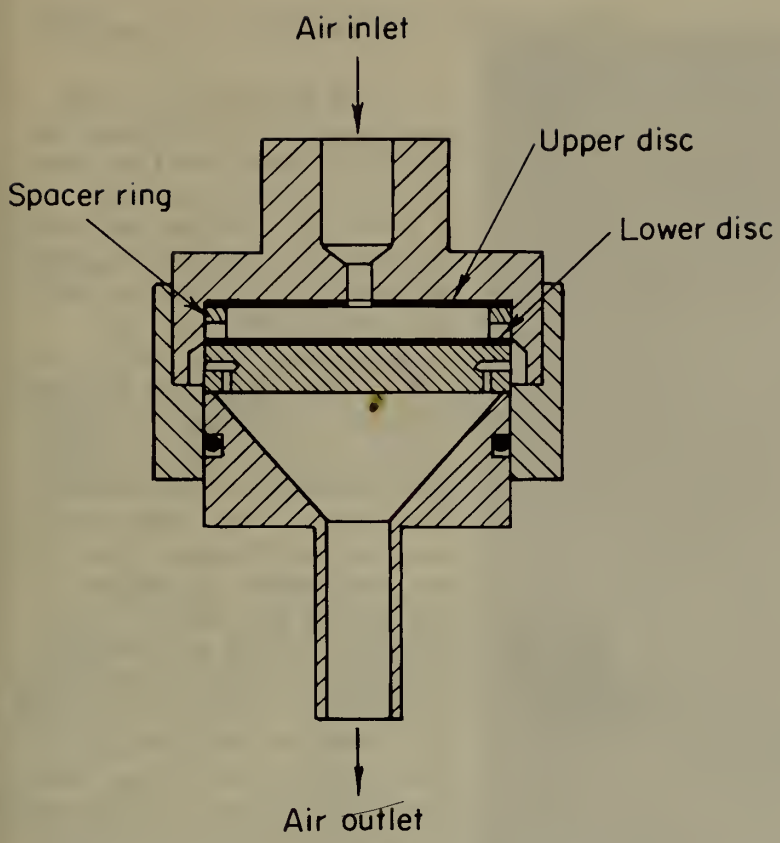

FIGURE 39. - Cross section of Mercer cell.

the air collect on the upper and lower disks, which are then counted. A simultaneous filter sample is taken to determine the total radon-daughter concentrations. The only calibrations practical for most laboratories are the flow calibration and the ratio of activities collected on the upper and lower disks. Determination of unattached atom collection efficiences requires a radon chamber and other specialized apparatus as described by Mercer and Stowe (8).

Field Equipment

Field equipment necessary for determination of unattached daughter fractions includes a Mercer cell, sample head with filters, two sample pumps (capable of 2 lpm), two or three digital counters with alpha detectors, and a stopwatch.

The Mercer cell is shown in figure 40 with a suitable sample pump. The cell was fabricated at the Denver Mining Research Center, from drawings obtained from the Health and Safety Laboratory, AEC, New York.

The sample pumps, sample head, and filters are identical with those normally used for radon-daughter sampling; the digital scalers with alpha detectors are also the same as those used for radon-daughter determinations. Pumps which produce an extreme pulsating flow, such as personnel samplers, should not be used for this procedure unless equipped with pulsation dampers. Two counters are necessary to count the standard filter and lower disk simultaneously; a third counter is necessary to count the upper disk unless the ratio of activities between the upper and lower disks has been previously determined.

Calibration Equipment

Equipment necessary for flow calibration of the Mercer cells includes only a wet-test meter and stopwatch. Two digital counters are necessary to determine the ratio of activity between the upper and lower disks.

FIGURE 40. - Mercer cell with pump.

Calibration Procedures

The Mercer cell and pump must be calibrated to find the pump settings necessary to draw exactly 1 or 2 lpm through the cell. The Mercer cell is connected between the outlet of the wet-test meter and the sample pump, similar to the setup used with the in-line filter. The pump is then set at approximately 1 lpm and allowed to run exactly 5 minutes. The sample volume, as determined from the wet-test-meter readings at the start and end of the sample, should be exactly 5 liters. If not, the pump is adjusted accordingly and the 5-minute sample again run. After the proper pump setting has been determined, this setting is recorded. The same procedure is followed to determine the proper setting for 2 lpm or a 10-liter sample.

The ratio between the activities collected on the upper and lower disks is determined by taking a number of samples in various radon atmospheres. These atmospheres should vary in the equilibrium ratio and in the fraction of unattached daughters. After each sample has been taken, the upper and lower disks are counted by the Thomas method (12-13) and the RaA activities compared. The ratio of activity on the lower disk to the activity on the upper disks is about 2.3 at a 1-lpm flow rate and 2.65 at a 2-lpm flow rate.

Sampling and counting procedures for field samples consist of two simultaneous samples, one with the Mercer cell at 2 lpm, the other with a standard filter head and filter at approximately the same flow rate. The filter and the lower disk (and the upper disk if necessary) are then counted by the Thomas method to determine the RaA, RaB, and RaC present on the filter and disks. The unattached fraction is given by

$$f = \frac{A_u + A_l}{A_r + E},$$

where f = unattached fraction of RaA,

A_u = RaA activity on upper disk,

A_l = RaA activity on lower disk,

A_r = RaA activity on reference filter,

and E = Collection efficiency for unattached atoms; 0.73 at 1 lpm, 0.645 at 2 lpm.

A_u and A_l may result from counts of both the upper and lower disks or from a count of either disk (preferably lower) and the known ratio of activities. Similar calculations may be made for RaB and RaC, but traditionally the RaA computation is listed as the fraction of unattached daughters.

Wire Screens

The wire screen has recently been shown to be an efficient collector of unattached radon daughters (2). The wire-screen-measurement procedure consists of collecting two samples: one sample is taken with a standard filter head and filter; the other sample is taken with a 60-mesh screen. The screen may or may not be backed by a filter (with a suitable spacer).

The only applicable calibration for the wire screen apparatus consists of a flow-rate calibration. This calibration is made in the same manner as the flow-rate calibration for the Mercer cell.

The "apparent" collection efficiencies for 60-mesh screens in 1-inch filter holders and nonpulsating flows were found to be 60 percent at 2 lpm and 47 percent at 3 lpm by George (2).

DISCUSSION

All equipment used to determine radon and radon-daughter concentrations must be accurately calibrated. The calibration procedures and tests described in this report are the procedures and tests presently used by the Radiation Group, DTSC. The proper calibration of the radon- and radon-daughter-measurement instrumentation by standard methods is necessary to assure accurate measurement of the radiation hazard in underground mines, and the use of standard methods is necessary for uniformity of measurements taken by company, inspection, or other personnel.

A 10-percent error in either the pumping rate or the counting efficiency will result in a corresponding 10-percent error in radon-daughter-concentration measurements. If the pumping rate is overestimated or the instrument counting efficiency overestimated, the radon-daughter concentration will be underestimated. If the pumping rate is underestimated by 10 percent and the counter efficiency underestimated by 10 percent, the radon-daughter concentration will be overestimated by about 20 percent.

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MESA Informational Report/1975

Progress of Mine Systems in Australia

UNITED STATES DEPARTMENT OF THE INTERIOR
Mining Enforcement and Safety Administration
Washington, D. C. 20240

Informational Report, 1006

Progress of Mine Systems in Australia

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UNITED STATES DEPARTMENT OF THE INTERIOR
Rogers C. B. Morton, Secretary

Mining Enforcement and Safety Administration
James M. Day, Administrator

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PROGRESS OF MINE SYSTEMS IN AUSTRALIA

by

Donald P. Schlick[1]

ABSTRACT

This paper covers an investigation of mining in Australia with special emphasis on shortwall mining and pillar recovery in underground coal mines, reclamation of mined areas at strip coal and noncoal mines, and mine rescue operations. The investigation was made to determine (1) the application of Australian mining, reclamation, and rescue systems to U.S. mines, (2) the impact of such systems on MESA's operations if adopted in the United States, and (3) to obtain information that may be used in developing tentative plans in MESA to deal with such systems in anticipation of adoption.

The report includes a description of Australian geology and mining operations and offers practical recommendations for consideration and action--principally by MESA.

INTRODUCTION

The purpose of this publication is to discuss underground coal mining operations in Australia which employ the shortwall system of extraction, examine the Australian method of pillar recovery in coal mining, and to assess what the Australian mining industry has accomplished in reclamation of mine properties.

All of these items have long-range implications for the future operations of MESA. For instance, shortwall mining has many advantages from the standpoint of health and safety. This type of mining has just started in the United States; whereas, Australia has been shortwalling since 1965. Pillar extraction is one of the most dangerous operations in underground coal mining. The Australians use two general methods to extract pillars. Enforcement of proposed coal mine reclamation regulations may become the responsiblity of MESA. Australia does not have explicit reclamation regulations, however, they are progressing towards more definitive standards. Even with current regulations in their present state, Australia is achieving positive results in the actual reclaiming of land.

COAL MINING CONDITIONS IN EASTERN AUSTRALIA

The writer visited mining operations in the States of New South Wales and Queensland. Approximately 95 percent of Australian black coal comes from these two States. (See fig. 1.) At the end of 1972 there were 132 underground mines

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FIGURE 1. - Australian coal measures.

producing black coal in Australia. Eighty of these mines were in the State of New South Wales, 46 were owned by a government authority of some type, and 15 were captive to companies producing iron, steel, and cement.

At the present time, Australia has no nuclear power plants. All power plants are operated with coal.

Black coal varies in classification between lignite and semi-anthracite, the major proportion being bituminous which is used in fossil fuel steam generating electric plants and for coke in steel making.

In the northern coal fields located around Newcastle, the geological measures consist of 1,300 feet containing some 15 coal seams. The regional geological stratum is a gently plunging syncline.

In the southern coal field, the coal measures range in thickness from 500 feet to 1,000 feet and contain 10 coal seams. (See fig. 2.) Of the 10 seams, the Bulli and Wongawilli are the main working seams. Working coal heights in these two seams average 10 feet. The geology in this field is a broad syncline featuring occasional faults which range up to 300 feet.

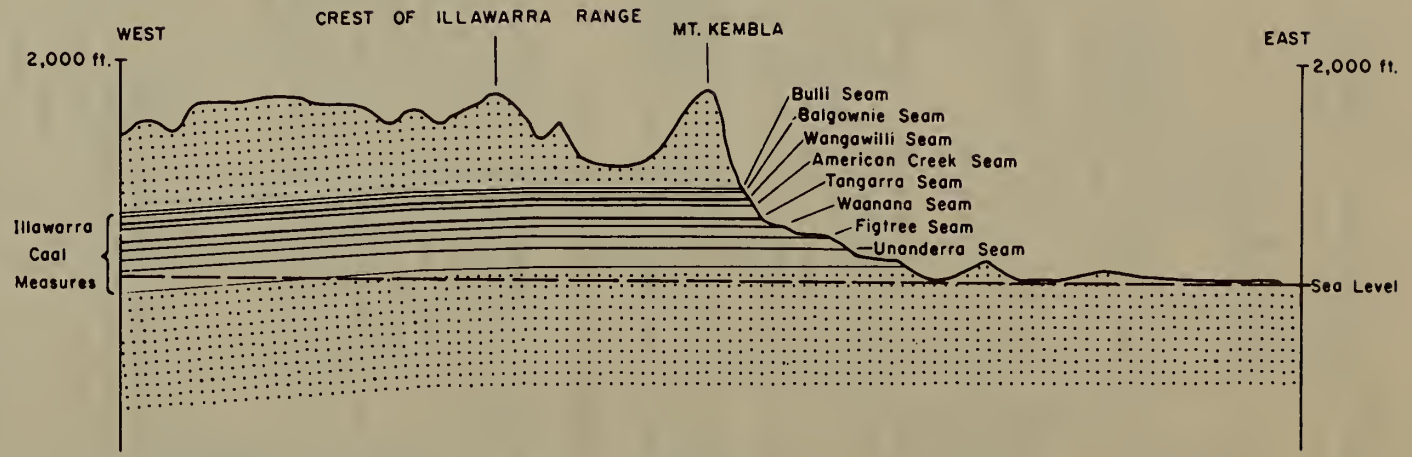
In the northern area of the State of Queensland the coal measures are contained in the Bowen Basin. The basin extends as an elongated trough and runs parallel to the coastline of the State of Queensland. (See fig. 1.)

UNDERGROUND MINING METHODS

Underground mining conditions and methods of coal extraction in Australia are very similar to those in the United States. Three systems of coal extraction are used in underground coal mining; they are room and pillar, longwall, and shortwall. Room-and-pillar mining employing U.S.-type continuous miners accounts for the vast majority of underground coal production. There are two main differences between the Australian and American methods. The first difference is that the Australians drive larger openings, sometimes 18 to 20 feet wide, and the second difference is that they use timber and wooden cross bars almost exclusively for roof support. Resin bolting is now used to a limited extent.

Shortwall mining employing continuous miners and shuttle cars was pioneered in Australia starting as far back as 1965. Several active shortwalls are currently operating in underground Australian coal mines. This system of mining is thought to be the method of the future and as such, the Australian mining community places substantial emphasis on its use. They feel that the time spent since 1965 in developing shortwall technology will definitely put them in the forefront of providing a safe and efficient mining environment for Australian miners.

A shortwall mining system which leaves pillars standing between each shortwall is now under trial. The theory is that this sytem provides a safer work place for the miners and also minimizes surface subsidence. Figure 3 illustrates this mining plan. Three development entries are driven on 60-foot



Typical cross-section of the Southern NSW coalfields.

FIGURE 2. - Cross-section of southern coal.

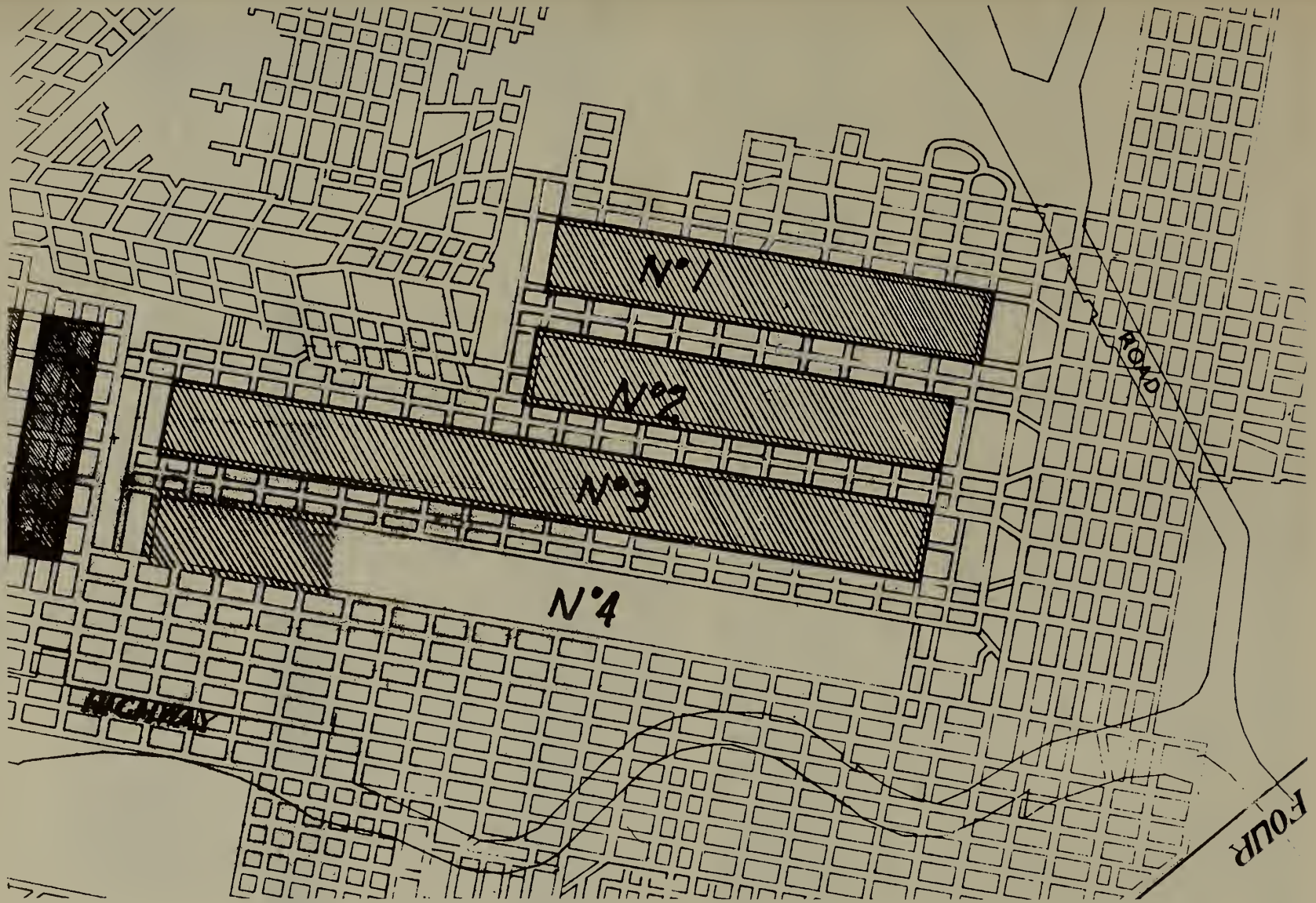


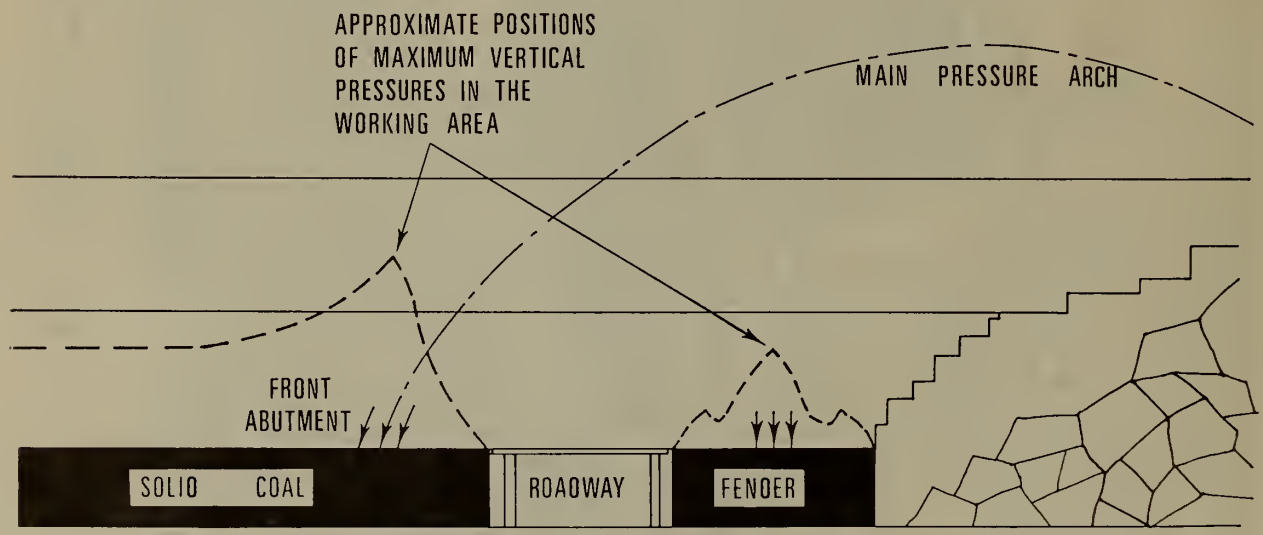
FIGURE 3. - Shortwall mining plan.

centers and each shortwall is at least 180 feet wide and 240 feet long; the development entries are left standing.

Longwall mining, for some reason, has not caught on in Australia; and, therefore, it accounts for only a small percentage of the underground coal mined. Longwall installations, although impressive, have not maintained sufficient production over the long run to insure a place for them in Australian underground coal mining.

The extraction of pillars (or second mining) is accomplished by one of two general methods. Both methods are based on a continuous miner loading coal into shuttle cars. One method of pillar extraction is called the "Wongawilli" system and the other is called the "Old Ben" system. The "Wongawilli" (see fig. 4) method was developed on the southern coast of the State of New South Wales where the roof conditions were less competent and the depth of the mine was greater. The development of this system provided more safety for those miners engaged in pillar extraction.

The "Wongawilli" system involves the delineation of a large block of coal on one side of the development heading. To commence extraction, a roadway is driven at right angles to the headings, into the block to be extracted. A second roadway is driven into the block parallel to the first, to form a "fender" strip. This fender is then extracted by successive lifts, removing all the coal in the fender back to the panel headings (fig. 4). A further



SIMPLIFIED SKETCH SHOWING APPROXIMATE RELATIONSHIP OF PRESSURE ARCH AND ZONES OF MAXIMUM VERTICAL PRESSURES AROUND THE WORKING AREA WHEN USING THE 'WONGAWILLI' SYSTEM OF PILLAR EXTRACTION.

FIGURE 4. - "Wongawilli" system.

entry is then driven parallel to the new gob edge, again leaving a fender, to be extracted back to the panel headings. Pillars formed as a result of the heading development can be extracted using the same pattern as for the large block. The success of the "Wongawilli" system of extraction lies in the fact that the working area is positioned in the destressed zone, adjacent to a gob area and within the main pressure arch. Driving an entry across a block of coal, leaving a fender adjacent at the gob, allows sufficient horizontal stress of relief in the immediate strata to minimize roof convergence and floor heave in the vicinity of the newly formed entry. The safety of the miner operator is dependent on good strata control. With this in mind, each pillar must be destressed, thereby achieving controlled caving of gob areas.

After an in depth investigation into a major roof fall killing several men, the "Old Ben" method of pillar extraction was refined and is now employed in a number of Australian mines.

Figure 5 shows a typical modified form of the "Old Ben" system as applied in the area. The system basically involves the delineation of an area of coal by the formation of three or four panel entries (usually three), which are driven to a predetermined barrier, leaving a block of coal about 300 feet wide on one side of the headings. A small block about 150 feet wide on the other side of the headings may also be worked from this panel. The larger block of coal, together with panel-heading pillars, and the small block are extracted on the retreat.

The larger block is first extracted by driving a split (figs. 5, 6-A) parallel to the panel headings leaving a fender (figs. 5, 7-A), about 21 feet

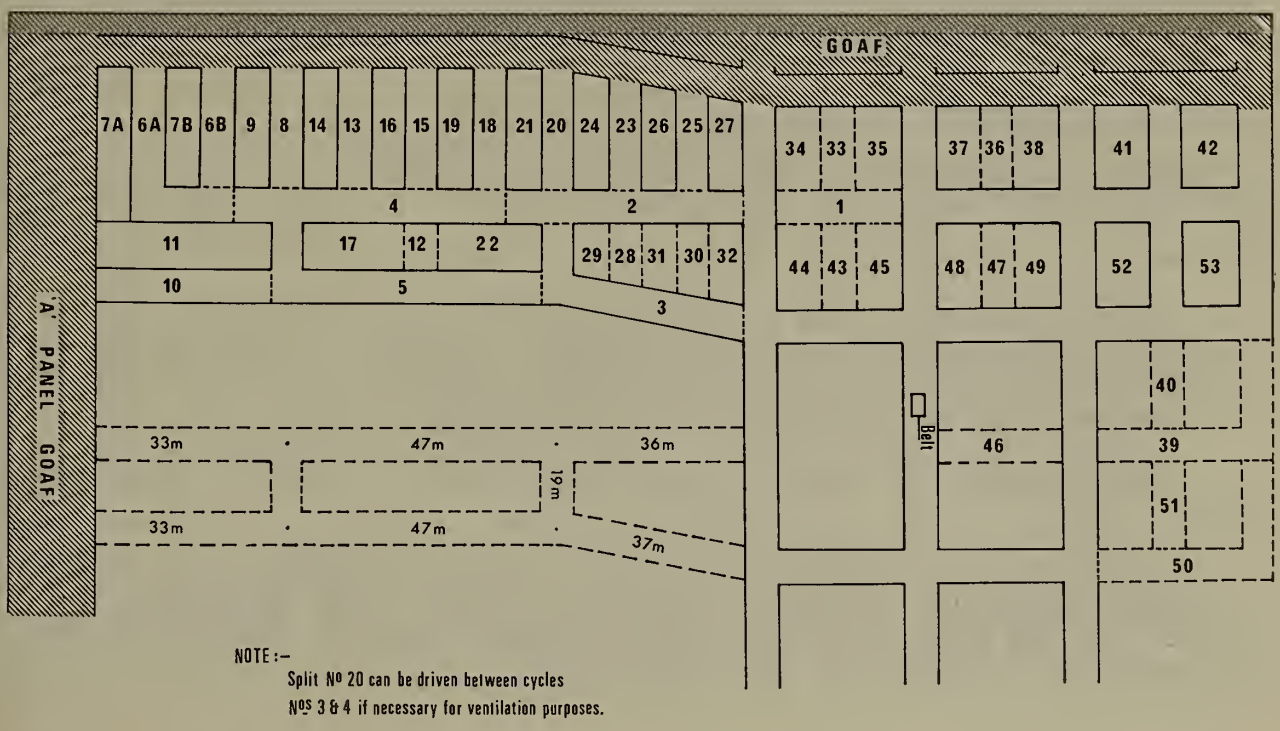


FIGURE 5. - "Old Ben" system.

wide, adjacent to the gob area. This fender is extracted on the retreat. The whole of the block is extracted in a similar manner. As the extraction of the block proceeds towards the panel headings, the long narrow pillars which were formed when the two entries were driven across the block are also removed. The pillars formed between the panel headings are also extracted by splitting and lifting the fenders so formed and the smaller block on the other side of the headings is likewise extracted.

As with the "Wongawilli" system, the "Old Ben" system presents several safety advantages over former traditional pillar extraction methods. The number of four-way intersections is kept to a minimum. The width of fenders formed for immediate extraction is kept to approximately 21 feet, thereby eliminating the necessity for the operator of the continuous miner to go beyond the edge of the roadway from which he is working. The amount of timber support required is kept at a minimum. The size of the panel can be designed to suit local conditions, and still keep to a minimum the number of intersections which have to stand for long periods. Proven strata control techniques are utilized to ensure that, wherever possible, roadways are driven in strata under normal stress conditions. When extracting fenders, the immediate area of exposed roof is kept to a minimum, thereby eliminating the danger of "feather edging" of the roof when the goaf (gob) falls. The sequence of operations for the extraction of an area of coal can be accurately defined and communicated to officials and workmen.

MINE SAFETY STATISTICS

Statistics on mine safety are kept by each coal-producing State.

In the State of New South Wales disabling injury rates are calculated in a similar manner to that method which is employed in the United States. In fiscal year 1970, the disabling frequency rate per million man-hours exposure was 140. In 1971 it was 136; 1972, 168; and in 1973 it was 189. The increasing rate is a deep concern to those officials involved in mine safety. In Australia, a relatively new law requires the State to pay full compensation to any miner injured beginning with the first day he is injured. Man-shifts lost due to men on compensation is up to almost 30 percent between 1968-1973.

Lost-time accidents are not evenly spread throughout the work week. For instance, there are 56 percent more accidents on Mondays than on Fridays and 15 percent more accidents on Tuesdays than on Thursdays. Twenty percent of all lost-time accidents occur during the fourth hour on duty.

During fiscal year 1973, 12 miners were killed in the State of New South Wales.

In the State of Queensland, the disabling injury frequency rate is not offically computated. Indications are that the rate would not materially differ from the rate in New South Wales. Table 1 lists the number of fatals and nonfatals in Queensland from 1961 to 1972.

TABLE 1. - Fatal and nonfatal injuries in Queensland

Accidents

Year	Total employees	Fatal	Over 14 days	14 days and under	Total
1961.....	3,270	2	213	300	515
1962.....	2,850	3	209	472	684
1963.....	2,701	3	143	336	482
1964.....	2,730	1	120	336	457
1965.....	2,519	3	139	311	453
1966.....	2,362	1	187	386	574
1967.....	2,313	4	175	399	578
1968.....	2,244	2	178	340	520
1969.....	2,270	3	178	331	512
1970.....	2,595	1	185	240	426
1971.....	2,883	5	192	385	582
1972.....	3,906	24	210	409	643

NOTICEABLE DIFFERENCES BETWEEN AUSTRALIAN AND AMERICAN COAL MINING PRACTICES

As previously mentioned, underground coal mining conditions and equipment are remarkably the same in Australia and the United States. Yet there are interesting differences that are worthy to note.

The Australians use little roof bolting. In almost all instances timber posts and wooden crossbars are used to support the roof. The width of an entry is approximately 20 feet, which is far wider than the average entry in the United States coal mines employing similar type continuous mining equipment.

Australia has stringent rock dust regulations similar to the United States. Yet, visual inspections indicated that much more rock dust is applied in American coal mines. Little evidence of rock dust application was noted in pillar recovery.

Shortwall mining was invented in Australia in 1965. During the intervening years the Australians have slowly developed the system. All things equal, the shortwall seems to be a safer operation than conventional continuous mining, yet in some instances the accident rate is higher on the shortwall. This indicates that other, antecedent operations connected with the shortwall may contribute to a higher accident rate, or even more alarming, when men know that they are working in a seemingly safer environment, they become complacent or careless. The mining industry can expect shortwall production in Australia to increase in the future, particularly as technology zeros in on solving some of the roof support equipment problems. Up to now the Australians have been carrying the development of shortwall mining roof support by themselves. Nevertheless, they are further advanced than the Americans in this apparently safer mining method.

The Australians have virtually eliminated mainline electric locomotive tracks haulage and the associated accidents that accompany this method of coal transportation. Coal is transported underground by belt and supplies and men are transported by either battery or diesel-powered vehicles. Therefore, the use of trolly wires is rare in Australian mines.

The Australians have had considerable experience using diesel equipment, notably diesel shuttle cars, diesel mantrip cars, and diesel equipment used to haul supplies. In a sentence, their experience has not been good. Diesel shuttle cars are not used to any great extent and those mines that use them have considerable difficulties in keeping them in operating condition. Maintenance seems to be the key problem. The near future looks somewhat cloudy for diesel shuttle car utilization in Australian coal mines. Diesel mantrip cars and supply hauling equipment are used to a greater extent than shuttle cars, but again, the lack of an adequate maintenance program causes too much downtime.

A noticeable difference between the Australian and American experience is that the section foreman belongs to the same union as the miners do. The union is represented at each mine by a "check inspector" who is duly elected by the mine union members. In many Australian mines, the "check inspector" is a section foreman. One could draw the conclusion that this arrangement is partly responsible for, or is conducive to, the lower productivity rates generally experienced in Australia. Mechanics and electricians belong to a different union. The "check inspector" is a part-time job. Under normal conditions he will make a monthly inspection jointly with the State inspector. A full-time "district check inspector," also duly elected by the union, is a certified deputy mine manager (similar to the United States system of State certification for mine foremen) and is responsible for a given geographic district. His salary is the joint responsiblity of the State Mines Department and the miners union.

The union job "bidding" system as practiced in American mines is not present in Australian coal mines. In general, mine management in Australia retains the right of job placement.

The Australian system of mine rescue training and actual mine rescue operations are treated differently than in the United States. This difference will be treated as a separate section.

The enforcement of coal mine health and safety regulations in Australia is primarily a State responsibility with the Federal Government playing a secondary role. It would be fair to assess the State posture as similar to the Federal Government's role in the United States prior to the passage of the Federal Coal Mine Health and Safety Act of 1969.

The State law has no assessment and penalty procedure for ordinary violations unlike the Federal Coal Mine Health and Safety Act of 1969. Mine closures are rare and come about only as a last resort when all other means of compliance have been exhausted. A mine inspector will have an average of 10 mines in his district to inspect.

From the standpoint of qualifications, the typical Australian State mine inspector is a graduate mining engineer who possesses a mine manager's certificate. He is definitely held in high esteem by the mining companies and usually joins the State after serving as a mine manager for a lengthy period of time. Mine inspectors are paid at the general rate equivalent to a mine manager. The ranks of the mine inspector are not heavily populated by men who in prior service were solely union members.

In the area of health, the Australian mining community has not gone to a gravimetric-type respirable dust monitoring system. They are very proud of the fact that they have not had a case of pneumoconiosis reported since 1947. Excellent dust control is established by exhaust face ventilation. Higher mining heights and wider mining widths make the application of this method easier in Australia. Tubing for the auxiliary exhaust ventilation system is laid along the floor and always extends inby the operator. The size and shape of the tubing is similar to 55 gallon drums laid end to end.

The shortwall mining system presents an excellent method of mining relative to respirable dust suppression. Intake air simply moves across the mining equipment, takes the dust-laden air from the face and continues on to the return air entry. Dust-laden air does not normally come into contact with a miner's breathing zone.

The Australians have no meaningful regulation concerning noise.

In general, union men do not rotate shift assignment. The most senior men will gravitate to steady day shift while the least experienced will work on the midnight shift. With seniority, the new worker will move to the afternoon shift and then to the day shift.

Union miners participate in a bonus sytem based solely on coal extraction. This bonus is paid in a monetary sum and can add up to one-thid of a miner's base pay. All men employed at a particular mine receive the same bonus.

Current union rates/week (quoted in Australian dollars: approximately $1.50 U.S. dollars = $1.00 Australian dollars):

1.	Mine operator, shuttle car operator.....	$91.00
2.	General laborer.....	85.00
3.	Mechanics.....	94.00
4.	Shotfirer.....	102.00
5.	Section foreman.....	104.00
6.	Mine foreman, mine superintendent.....	140.00

MINE RESCUE STATION

The concept of mine rescue stations, its organization, and the execution of its programs are outstanding. Finance and operations are controlled by a Mine Rescue Board which consists of State, company, and union officials. The activities are financed by contributions from coal mines in the district covered by the mine rescue station. Each mine's contribution is based on the unimproved capital of the coal mine's assets.

In the States of New South Wales and Queensland there are eight central mine rescue stations. In general, the stations are so well located geographically that within one-and-a-half hours, personnel from a central station can be at the scene of a mine emergency. Where this is impossible due to great distances involved, substations are created on the mine property.

Mine rescue service is made possible through a small corps of permanent rescue workers located at the main station and a large number of trained mine workers who form volunteer mine rescue brigades. These volunteer workers work at the mine and are employed as mine workers or management officials. The objectives of a central mine rescue station are to:

1. Provide immediate and comprehensive assistance to a mine during a mine emergency;

2. Maintain at all times a small but permanent corps of trained mine rescue personnel;

3. Provide facilities and mine rescue equipment to conduct periodic training to ensure that all volunteer rescue workers are fit and qualified; and

4. Train volunteer mine rescue teams sufficient to mount a continuous mine rescue effort for any mine in the district.

Each underground mine has at least one mine rescue team which is comprised of between six and eight men. Some mines have three or four teams. Team members are selected by mine management and initially undergo a continuous 11-day training period at the central mine rescue station. At the end of this training period each trainee is tested and if he passes the test, he is given a Certificate of Competency in Mine Rescue. He then returns to his mine and joins a mine rescue team. Mine rescue teams are required to conduct two-hour training sessions six times a year. These training sessions are supervised by officials from the Central Mine Rescue Station and are conducted at either the Central Mine Rescue Station or at one of the substations located on the mine property. The Central Mine Rescue Station pays each mine rescue team member for taking the periodic rescue training.

The functions of a Central Mine Rescue Station are to:

1. Conduct mine rescue service in the event of a mine emergency;

2. Train volunteer mine rescue teams and new personnel;

3. Maintain mine reacue equipment located at the Central Mine Rescue Station, substation, and equipment belonging to each mine;

4. Carry out mine rescue research and development; and

5. Maintain, in a state of readiness, at each Central Mine Rescue Station mine rescue vehicles that are fully equipped with rescue apparatus.

German-made self-contained breathing apparatus is used throughout Australia.

Training galleries are constructed at the Central Mine Rescue Station to closely simulate underground mining conditions. For example, furnaces are employed to simulate heat and fire conditions. Training is very practical and controlled by the instructor.

ROCK MECHANICS AND STRATA CONTROL

Rock mechanics and strata control research is carried out by both the public and private sector. The Australian Coal Industry Research Laboratory (ACIRL) conducts research programs by constructing clay models and loading them to simulate mine roof and floor pressures. Mine pillar recovery design is carried out to quickly distress a pillar and thus create a uniform caved area.

The Australians, both in private industry and State governments, carry out more research and development in rock mechanics and strata control than does the United States.

RECLAMATION

Australia does not have specific regulations that are addressed to coal reclamation. The State of New South Wales has recently adopted a policy of bonding mine operators to reclaim coal strip areas. Bonds are set by the State Mine Enforcement Agency at a slightly higher cost than it would cost the mine operator to reclaim the land. Bonds have been set from 500 to 1,000 Australian dollars per acre. Each strip mine operator is required to submit a plan which illustrates the proposed method of reclamation. Bonds are forfeited when reclamation is not properly carried out. This stringent policy was instituted in mid-1972. An inspection is made quarterly by the State Mine Enforcement Agency in conjunction with the Soil Conservation Department. Currently, no bonds have been forfeited. The flat, rolling terrain makes reclamation technically and economically more practical.

Some private coal mining companies have restored the land to a value which exceeds the original worth. They then graze cattle on this land which, after reclamation, can reportedly graze more heads per acre than was possible prior to strip mining.

The State of Queensland does not have a general bond for reclamation. Recently the State has taken a tough but pragmatic approach to strip mine reclamation. Prior to this time, little reclamation was accomplished due to the remoteness of the land and its low dollar value. Some private companies are not waiting for reclamation regulations to force them to reclaim. Instead, they are instituting programs to level the stripped land to near its original contour and seed the leveled land. One company is having initial success in trial patches by planting seed with fertilizer and no top soil. Reportedly, this is the first such experiment in a tropical climate. The rate of coal reclamation will be on the upswing in Australia, but at a pace that ecology and mine economists will allow.

Australia is active in beach sand mining. This type of mining yields heavy minerals such as rutile, zircon, ilmenite, and monazite. The State government of New South Wales and Queensland have strong reclamation requirements (that is, bonds) which are written into each mining contract. Reclamation is carried out as an integral part of the mining operation. (See fig. 6.) These procedures evolved over many years of practical experience.

The aim of beach sand reclamation is to return the land to its original contour and plant vegetation which is similar to, as much as possible, that which originally grew on the property. There are numerous instances where reclaimed beach sand areas have been converted to beachside parks, trailor parks, and playgrounds.

The first step in beach sand reclamation is to strip the scrub off the area and turn the top soil to one side (see fig. 6) of the dredge path. After the beach sand is mined and the tailings are deposited behind the mining plant, bulldozers return the tailings to the land and restore the original contour. The top soil is then applied to the new contoured surface which has a forward slope to eliminate wind erosion. Grass is then planted and covered with layers of cut brush to inhibit wind erosion. As the new grass grows, the brush decays, thereby supplying additional nutrients to the sand. When the grown grass has stabilized, additional seedlings of native plants are usually introduced to the soil. These plants are grown in nurseries belonging to the beach sand mining companies.

The mining companies retain the responsiblity of reclamation for several years. Not until after this time and a close-out inspection by the Mine Department is the bond returned to the mining company.

RECOMMENDATIONS

The American mining industry has associated itself with the advancements of Australian shortwall mining technology. MESA may benefit from doing likewise, as this method of coal extraction is bound to increase.

Mine rescue training centers and their program of implementation are well in advance of anything we have in the United States. An in-depth study of their program could prove to be instrumental in improving current programs in the United States.

It is recommended that MESA conduct a study on Australian Mine Rescue Training Centers. If the results of the study warrant it, consideration should be given to preparing a similar program for use in the United States.

The science of rock mechanics and strata control is further advanced in Australia than in the United States. The Federal Republic of West Germany is even further advanced than both Australia or the United States. MESA should carefully study the Australian and German experiences in this area.

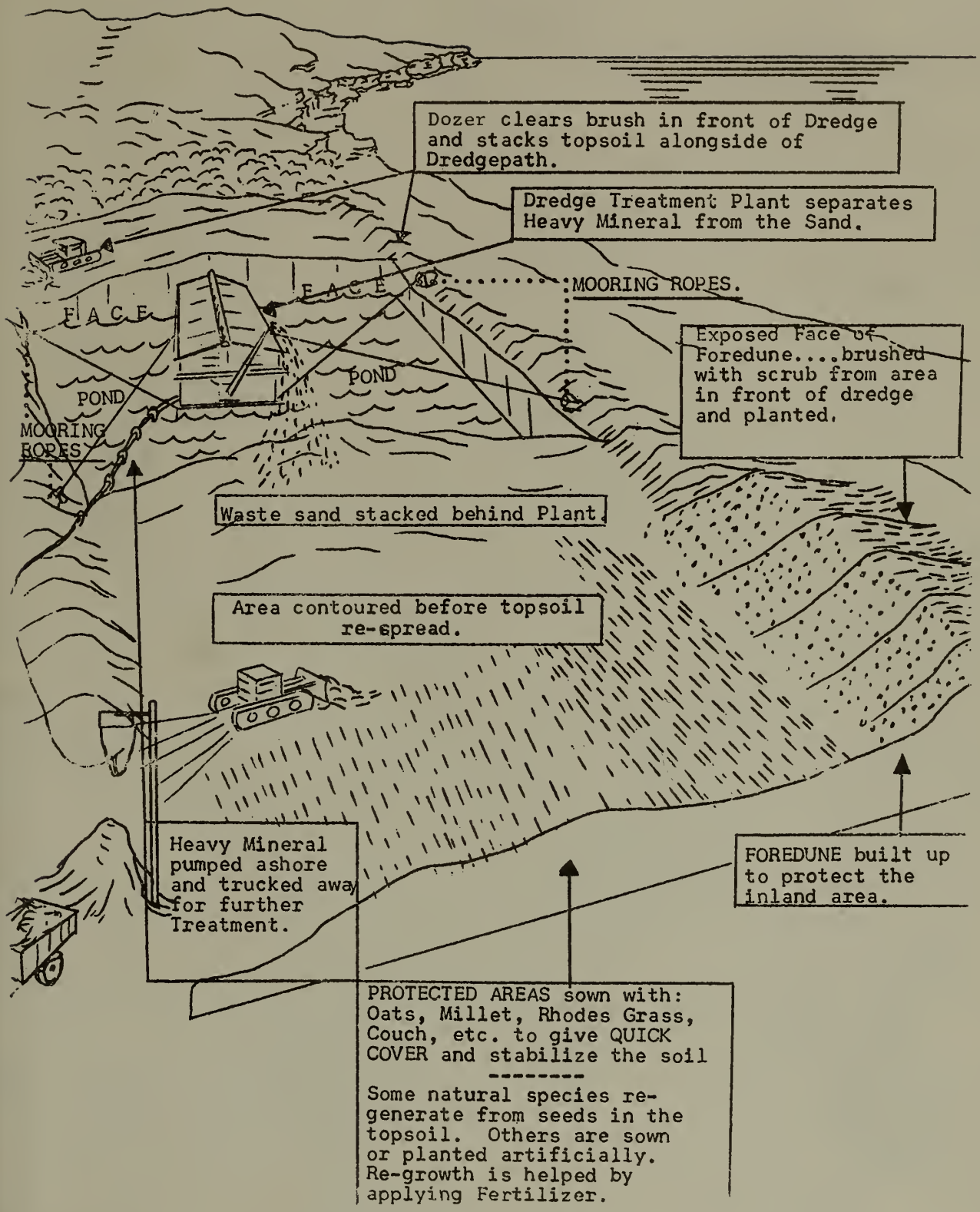


FIGURE 6. - Beach sand reclamation.

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MESA Informational Report/1975

Injury Experience in Quarrying, 1970-71

UNITED STATES DEPARTMENT OF THE INTERIOR
Mining Enforcement and Safety Administration
Washington, D. C. 20240

Informational Report 1007

Injury Experience in Quarrying, 1970-71

By Staff, Branch of Recurring Reports
Health and Safety Analysis Center, Denver, Colo.

UNITED STATES DEPARTMENT OF THE INTERIOR
Rogers C. B. Morton, Secretary

Mining Enforcement and Safety Administration
James M. Day, Administrator

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INJURY EXPERIENCE IN QUARRYING, 1970-71

by

Staff, Branch of Recurring Reports,
Health and Safety Analysis Center

ABSTRACT

This report reviews injury experience in the quarrying industry for 1970-71. Twenty-seven tables for each year are presented in which disabling work injuries are summarized by department, source of injury, extent of disability, part of body injured, and nature of injury. Correlative information on employment, worktime, and operating activity also is presented.

INTRODUCTION

Under provisions of Section 13, Public Law 89-577 (Federal Metal and Nonmetallic Mine Safety Act), the Bureau of Mines collected injury and employment data for stone quarries and mills by a mandatory reporting system in 1970 and 1971. This Act required the operators of mines and/or mills subject to the Act to submit reports of accidents, injuries, and occupational diseases, and related data.

Quarry operators classified disabling work injuries by department, source of injury, extent of disability, part of body injured, and nature of injury, as requested on the annual employment canvass form. From these data, personnel of the Health and Safety Analysis Center of the Mining Enforcement and Safety Administration (MESA) determined the appropriate injury classification and tabulated the injuries by common factors. The relative prevalence of injuries to the different parts of the body, the nature of the injury, and the relative severity of injuries are among the summarized factors. Data pertaining to injury and employment statistics are contained in appendix A for 1970 and in appendix B for 1971. Appendix C is a sample of the canvass form used to collect these data.

ACKNOWLEDGMENTS

MESA acknowledges the cooperation of the operators of the stone quarries and mills who submitted data on injuries and related employment. This cooperation makes possible the compilation of industrywide information on injury experience to aid in the promotion of safe working habits and conditions.

SCOPE OF STATISTICS

The statistical data of this report cover the work experience of all personnel engaged in exploration, development, production, maintenance, repair, and force-account construction work, including supervisory and technical personnel and working partners. Information concerning onsite office-workers at stone quarries and mills appears separately and is presented only as mentioned specifically in table titles.

The compiled information is based on reports covering an annual average of 5,147 quarries and 3,466 mills in operation during all or part of the period 1970-71. Most of the information on stone quarries and mills was received directly from the operators. However, to obtain complete coverage of the industry, it was necessary to estimate injury and employment data for certain operations from information available from other sources.

The terminology used throughout this report is that generally used by the mineral-extractive industries and by the Bureau of Mines and MESA. The recording and measuring of work injury experience follows the U.S.A. Standard Method.[1] The classification and extent of industries is in close general agreement with the Standard Industrial Classification.[2]

DEFINITION OF TERMS

Key terms used in this publication series are defined or described as follows:

Disabling work injury.--Any injury suffered by a person that arises out of and in the course of his employment that results in death, permanent total disability, permanent partial disability, or temporary total disability.

Fatality.--Any death resulting from a disabling work injury, regardless of the time intervening between injury and death.

Permanent total disability.--Any disabling work injury other than death that permanently and totally incapacitates an employee from following any gainful occupation, or that results in the loss, or the complete loss of use, of both or any two: hands, arms, legs, feet, or eyes.

Permanent partial disability.--Any disabling work injury other than death or permanent total disability that results in the loss, or the complete loss of use, of any member or part of a member of the body, or any permanent impairment of functions of the body or part thereof, regardless of any pre-existing disability of the injured member or impaired body function.

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[1] United States of America Standards Institute (formerly the American Standards Association, Inc.). U.S.A. Standard Method of Recording and Measuring Work Injury Experience. Bull. Z16.1--1967, pp. 7-15.

[2] Executive Office of the President, Bureau of the Budget. Standard Industrial Classification Manual. 1957 revision.

Temporary total disability.--Any disabling work injury that does not result in death or permanent impairment, but which renders the injured person unable to perform a regularly established job that is open and available to him, during the entire time interval corresponding to the hours of his regular shift on any one or more days (including Sundays, days off, or plant shutdown) subsequent to the date of injury.

Lost time injury.--Same as disabling work injury.

Disabling injury-frequency rate.--The number of disabling work injuries per million man-hours of exposure. It is calculated by multiplying the total number of injuries by one million and dividing the product by the total man-hours of worktime.

Disabling injury-severity rate.--The number of days lost or charged from disabling work injuries per million man-hours of exposure. It is calculated by multiplying the total number of days lost or charged by one million and dividing the product by the total man-hours of worktime.

Average severity.--The average number of days lost or charged per disabling injury. It is calculated from the total number of days lost or charged divided by the total number of disabling injuries.

Days lost.--The number of full calendar days the injured employee was unable to work as the result of a temporary total disability.

Days charged.--All fatalities and permanent total disabilities have a standard time-loss charge of 6,000 days. Injuries resulting in permanent partial disability are assigned a time-loss charge depending upon the particular injury as specified by the U.S.A. Standard Table of Scheduled Charges.[3]

Men employed.--Average number of men at work each day the mine or plant was active for production or development. As absenteeism and labor turnover are considered, this number is lower than the number available for work as measured by a count of names on the payroll.

Underground mine.--An underground mining establishment separated into an underground department and a surface department which includes the associated supply, maintenance, repair, and yard facilities on the surface.

Open pit.--An open pit mining establishment including the pit and associated surface facilities.

Other surface mining.--Placer, dredging, hydraulicking, leaching, wells and brines, Frasch sulfur, and exploration establishments as well as stockpiles, mine dumps, and old tailings dumps worked for recovery of ore.

Mill.--An establishment processing ores and minerals by washing, screening, crushing, grinding, concentrating, or other means. The mill may be in

[3]Pp. 10-11 of work cited in footnote 1.

conjunction with a mining operation or may be operated independently as a custom mill.

Accident-cause classification.--The cause classification used in this report has been developed by the Bureau of Mines through many years of analyzing descriptions of accidents which resulted in injuries at mineral extractive and processing operations. The classification descriptions are as follows:

Falls of roof or back.--Falls of ore or rock from their in-place location in the mine roof, back, overhead, or brow. Excludes falls of rock or ore caused by equipment knocking out support or falls from pressure bumps or bursts.

Falls of face or side.--Any fall of ore, rock, or waste from their in-place location in the face, wall, breast, side, rib, or pillar in underground workings and from the side, face, or wall in open pits. Excludes falls caused by equipment knocking out support or falls from pressure bumps or bursts.

Pressure bumps or bursts.--Falling or flying roof, back, face, or side material caused by pressure bumps or bursts.

Inrush of water or material.--Includes inrushes of water or unconsolidated material caused by mining into or too close to flooded old workings, natural subterranean cavities, etc., or unconsolidated sediments such as sand.

Other falling materials or objects.--Rolling, shifting, sliding, or falling materials or objects not being handled or disturbed by the injured worker. Includes ore or rock already broken from its in-place position.

Slips or falls of persons.--Slips or falls on the same level and from an elevation are grouped separately. Slips or falls in or from haulage equipment that resulted from an accident on haulage, from the motion of haulage equipment, or while getting on or off haulage equipment are excluded. Slips or falls into moving or operating machinery or into electrically generated equipment also are excluded.

Handling materials.--Injuries occurring while moving, lifting, loading, carrying, or installing ore, rock, supplies, or materials; and injuries from flying particles from materials being handled or moved.

Handtools.--Accidents from tools in hands of injured worker or of fellow worker, except power-driven tools. Includes flying pieces from tools being used.

Stepping or kneeling on sharp or loose objects.--Stepping or kneeling on sharp or loose objects, slips or falls from stepping on loose objects, and cases of bursitis or "miner's knee" resulting from working on hands and/or knees.

Striking or bumping against objects.--Cases of walking or bumping into stationary objects. Excludes cases of striking or bumping in the course of servicing and repairing equipment, handling materials, using handtools, operating machinery or haulage equipment, etc. Excludes cases of striking or bumping moving or operating machinery or electrically generated equipment.

Haulage.--Haulage accidents are divided into the following six groups: (1) mine cages, cars, or motors; (2) shuttle cars, transloaders, and small mobile trucks; (3) railroad cars and locomotives; (4) water transportation; (5) automobiles, gasoline or diesel trucks, tractors, etc.; and (6) miscellaneous equipment (ropes, animals, belts, etc.). Included in the haulage category are falls of roof, back, or face from equipment knocking out supports; slips or falls of persons resulting from haulage accidents, from the motion of the equipment, or while getting on or off equipment; and flying particles set in motion by haulage equipment or draft therefrom.

Explosions of gas or dust.--Explosions of gas or dust in the mine environment.

Explosives and breaking agents.--Cases in which the detonation, fumes, flying fragments, or improper use of the explosive or breaking agent, fuses, caps, or detonators was the cause of injury.

Electricity.--Cases resulting from contact with electric current or from arcs or flashes.

Machinery.--Accidents while operating machines are separated from those while moving or tramming a whole machine, except continuous mining machines. Injuries occurring while moving a repair part of a machine are classed under "handling materials." Included in the machinery classification are falls of roof or face caused by machinery knocking out support, setting-up or servicing machinery, and flying particles set in motion by machinery. Excluded from the classification are accidents occurring in the course of repairing machines, unless the accident resulted from in-motion machinery.

Suffocation.--Divided into suffocation (1) from naturally occurring gases from strata or processing gases, or from oxygen-depleted atmospheres, and (2) from foreign gases such as from oil or gasoline fumes, from gases and smoke drawn underground from a surface fire, or from gas wells. Excludes gases from mine fires, explosions, and explosives use.

Mine fires and suffocation from fires.--Mine fire accidents are divided into (1) mine fires in which mineral or timber is burning, and (2) other fires in which equipment or material other than mineral or timber is burning.

Miscellaneous causes.--Includes flying particles from draft or wind; gas or burns from carbide; gas, burns, or flying materials or flashes from acetylene and electric welding and cutting; irritations and burns from battery fluid or other acids; burns from controlled wood, oil, or coal fires, steam, hot grease, oil, etc.; and all other accidents not elsewhere classified.

Occupational pneumoconiosis.--A chronic dust disease of the lungs, such as silicosis, caused by prolonged inhalation of occupational dusts, such as coal.

HISTORICAL INJURY EXPERIENCE IN THE QUARRYING INDUSTRY

Data have been published since 1911 for the quarrying industry, for the average number of men employed, the average days active, man-days worked, fatalities, and nonfatalities by severity of injury. From 1911 to 1914, inclusive, the Bureau's classification of nonfatal injuries covered two groups--"serious" injuries, disabling a workman for more than 20 days, and "slight" injuries, causing disability not exceeding 20 days but for longer than the remainder of the day of injury. From 1915 to 1929, a "serious" injury, as the term was used in the Bureau reports, signified a temporary injury disabling an employee for more than 14 days. Beginning in 1930, all temporary total injuries have been included in a single group, each injury causing disability for more than the remainder of the day on which the injury occurred. Nonfatal injuries are classified by severity of injury as follows: Permanent total, permanent partial, and temporary total.

From 1911 through 1916, injury-frequency rates in this series of publications were indicated by showing the number of injuries per thousand men employed. This basis was later improved, 1917 to 1930 inclusive, by the adoption of a method that gave weight to the number of days during which the quarries were in operation. In calculating rates, the total number of employees was converted to the equivalent number of 300-day workers. This latter figure was employed to determine the injury rates per thousand 300-day workers.

Beginning in 1931, the Bureau of Mines began to collect and use the number of man-hours of exposure as the basis for determining injury-frequency rates. Most of the operating companies report the number of man-hours worked, and that figure is generally accepted by the Bureau as the best record available. In some cases, however, it has been necessary to approximate the number of man-hours by multiplying the average number of employees by the number of days the employees worked and then multiplying the product by the number of hours worked per day (length of working shift). It is thus possible to reduce all such variations as number of men working in different mines, number of working days per year, and number of working hours per day into a common denominator of comparison. Once all injury rates are converted to a man-hour basis, the rates for quarrying and other industries may be compared, as may the rates for the same or different classes of mining from year to year or quarries in different localities. The relative risk for different groups or for the same group for different periods of time may thus be compared.

In 1936 the canvass of the quarrying industry was expanded to include plants operated by noncommercial agencies, such as States, counties, and cities. It is not believed that the reports received represented all operations of a noncommercial character, and it is impossible to state the extent of coverage represented by the reports. Data on noncommercial plants for 1936 through 1948 were shown separately. However, in 1949 the data for

noncommercial and commercial plants were combined, and since that date separate data have not been available.

In 1962, the Bureau of Mines requested the operators of all quarries to furnish a description of each disabling injury and to report the number of days of disability experienced for each temporary total injury. Fatal and permanent total injuries are assigned the standard charge of 6,000 days. Permanent partial disabilities either traumatic or surgical resulting from work injuries are assigned charges as provided in table 1. These charges are used whether the actual number of days lost is greater or less than the scheduled charges, or when no days are lost, except in those few instances when an employee suffers a permanent partial injury to one part of his body and a temporary total injury to another part in one accident. In the last instance, the greater charge is used and determines the injury classification. Beginning in 1962, therefore, injury-severity rates have been available for the quarrying industry in the United States.

Injury and employment data for the quarrying industry were collected on a voluntary basis from 1911 through 1961, and by a mandatory reporting system in 1962 under provisions of Public Law 87-300. During the period 1963-65, reporting was again on a voluntary basis.

Beginning in 1966, injury and employment data for quarry operations were collected annually by a mandatory reporting system under provisions of Section 13, Public Law 89-577.

Table 1 gives the scale of time charges for injuries. Table 2 gives the salient statistics for 1967-71; table 3 presents the injury experience and employment data on stone quarries and mills in the United States for 1911-71.

GENERAL INJURY EXPERIENCE

During 1970, the overall injury experience, excluding officeworkers, at 8,488 stone quarries and mills was 43 fatal and 3,666 nonfatal disabling work injuries. These injuries resulted in a combined fatal and nonfatal injury-frequency rate of 20.13 per million man-hours of exposure, consisting of a fatality rate of 0.23 and a nonfatal injury rate of 19.90. The combined injury-severity rate of 2,292 consisted of a fatal injury rate of 1,400 and a nonfatal injury rate of 891. The average severity of all injuries at stone quarries and mills was 114 days lost per disabling work injury. An average of 82,010 men worked daily in the quarrying industry during 1970, accumulating approximately 184.2 million man-hours during the year.

During 1971, the overall injury experience, excluding officeworkers, at 8,737 stone quarries and mills was 58 fatal and 3,893 nonfatal disabling work injuries. These injuries resulted in a combined fatal and nonfatal injury-frequency rate of 21.40 per million man-hours of exposure, consisting of a fatal injury rate of 0.31 and a nonfatal injury rate of 21.09. The combined injury-severity rate of 2,784 consisted of a fatal injury rate of 1,885 and a nonfatal injury rate of 899. The average severity of all injuries at stone quarries and mills was 130 days lost per disabling work injury. An average of 82,806 men worked daily in the quarrying industry during 1971, accumulating approximately 184.6 million man-hours during the year.

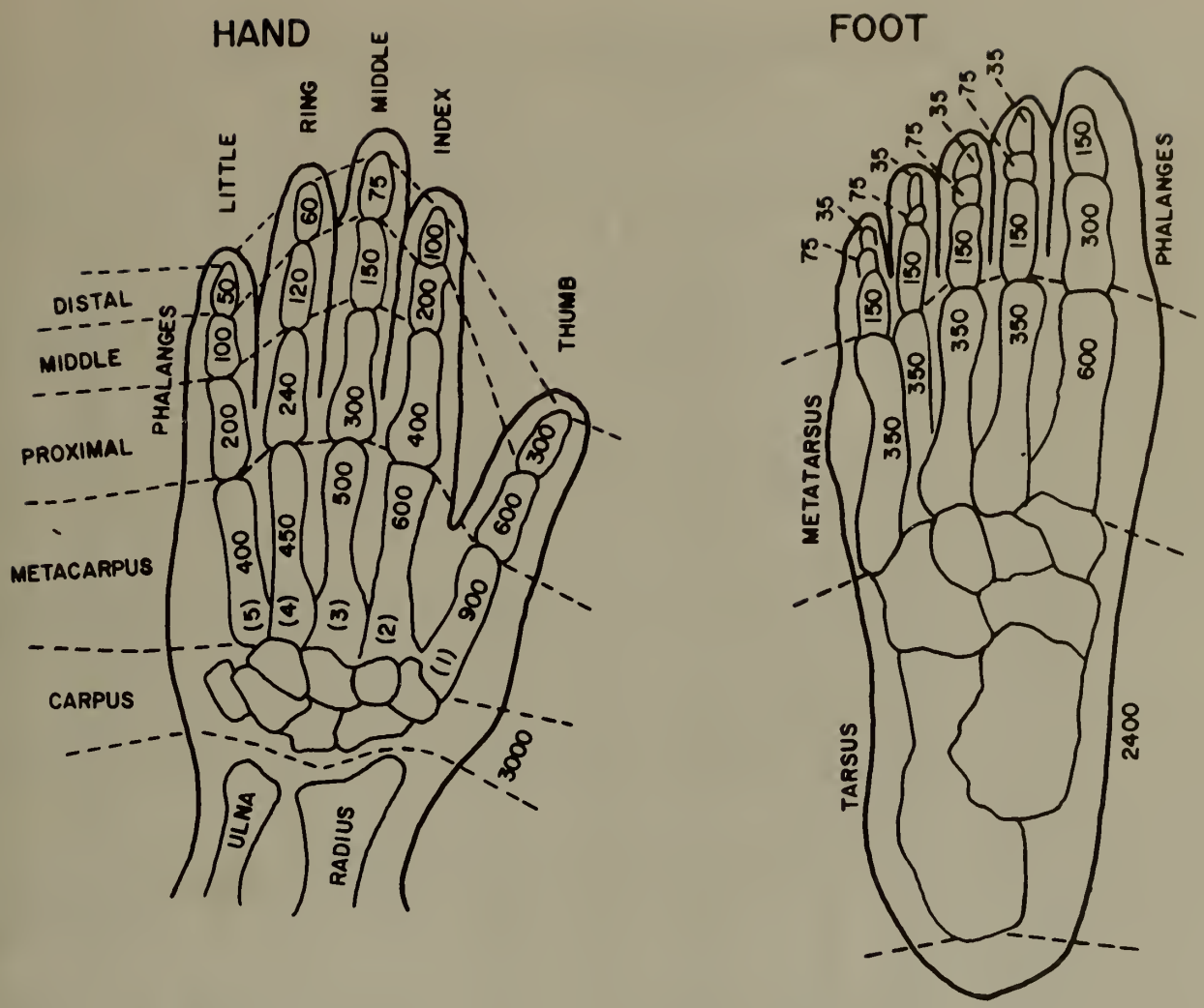
TABLE 1. - Scale of time charges[1] for weighting deaths, permanent total disabilities, and permanent partial disabilities for computing severity of injuries

Injury	Time charge (days)
Death	6,000
Permanent total disability	6,000
Dismemberment[2] or total loss of use:	
Arm above elbow	4,500
Arm at or below elbow and above wrist	3,600
Hand at wrist	3,000
Thumb	([3])
Finger	([3])
Leg above knee	4,500
Leg at or below knee and above ankle	3,000
Foot at ankle	2,400
Great toe	([3])
Other toes	([3])
Loss of sight:	
One eye (whether or not there is sight in the other eye)	1,800
Both eyes (in one accident)	6,000
Complete industrial loss of hearing:	
One ear (whether or not there is hearing in the other ear)	600
Both ears (in one accident)	3,000
Unrepaired hernia	50

[1] United States of America Standards Institute (formerly the American Standards Association, Inc.). U.S.A. Standard Method of Recording and Measuring Work Injury Experience. Bull. Z16.1--1967, 28 pp.

[2] Dismemberment means severance of any part of the bone.

[3] See figure 1 for scheduled charges for hand and foot.



NOTE :

Numbers shown on diagram are charges in days lost for loss of all or part of bone.

For additional information on use of the chart see 2.3.1.1 through 2.3.1.5 Bulletin Z.16.1-1967 USA Standard Method of Recording and Measuring Work Injury Experience

FIGURE 1. - Chart of scheduled charges for loss or loss of use involving hand or foot.

TABLE 2. - Salient statistics on injuries, injury rates, and worktime data on stone quarries and mills in the United States, 1967-71

	Excluding officeworkers					Including officeworkers				
	1967	1968	1969	1970	1971	1967	1968	1969	1970	1971
Injuries:										
Fatal	46	58	53	43	58	46	58	53	43	58
Nonfatal:										
Permanent total	3	2	1	1	2	3	2	1	1	2
Permanent partial	95	97	116	113	100	95	97	116	113	100
Temporary total	3,169	3,161	3,272	3,552	3,791	3,180	3,170	3,279	3,565	3,801
Total nonfatal	3,267	3,260	3,389	3,666	3,893	3,278	3,269	3,396	3,679	3,903
Grand total	3,313	3,318	3,442	3,709	3,951	3,324	3,327	3,449	3,722	3,961
Injury rates:										
Frequency per million man-hours:										
Fatal	0.25	0.31	0.28	0.23	0.31	0.23	0.29	0.26	0.22	0.29
Nonfatal	17.54	17.47	18.12	19.90	21.09	16.27	16.24	16.81	18.43	19.45
Total fatal and nonfatal	17.79	17.78	18.41	20.13	21.40	16.49	16.53	17.08	18.65	19.74
Severity per million man-hours:										
Fatal	1,482	1,865	1,701	1,400	1,885	1,370	1,729	1,574	1,293	1,734
Nonfatal	826	835	934	891	899	763	774	865	824	828
Total fatal and nonfatal	2,308	2,700	2,634	2,292	2,784	2,133	2,503	2,440	2,116	2,562
Average severity (days lost per injury):										
Permanent partial	570	624	696	599	581	570	624	696	599	581
Temporary total	26	26	27	25	25	26	26	27	25	25
All injuries	130	152	143	114	130	129	151	143	113	130
Average men working daily	84,765	84,084	83,149	82,010	82,806	91,952	91,010	90,209	89,268	90,520
Average days active	266	268	272	269	267	266	268	271	268	266
Man-days worked	22,548,479	22,543,247	22,585,595	22,082,350	22,125,931	24,430,629	24,352,453	24,429,468	23,959,477	24,097,989
Man-hours worked	186,226,587	186,620,158	187,003,122	184,225,117	184,615,166	201,518,183	201,306,806	201,970,124	199,586,988	200,686,300
Average hours per man per day	8.26	8.28	8.28	8.34	8.34	8.25	8.27	8.27	8.33	8.33
Average hours per man per year	2,197	2,219	2,249	2,246	2,229	2,192	2,212	2,239	2,236	2,217
Active mines	5,373	5,120	5,056	5,115	5,179	5,373	5,120	5,056	5,115	5,179
Active mills	3,443	3,595	3,499	3,373	3,558	3,443	3,595	3,499	3,373	3,558

TABLE 3. - Injury experience and worktime data at stone quarries and mills in the United States, 1911-71

Year	Injuries		Frequency rates per million man-hours (1/)		Average men working daily	Average days active	Man-days worked (thousands)	Man-hours worked (thousands) (2/)
	Fatal	Nonfatal	Fatal	Nonfatal				
1911----------	188	5,390	0.79	22.74	110,954	228	25,325	237,043
1912----------	213	6,552	.81	24.87	113,105	249	28,151	263,494
1913----------	183	7,739	.75	31.63	106,278	246	26,142	244,691
1914----------	180	7,836	.94	40.93	87,936	233	20,456	191,470
1915----------	148	9,671	.64	41.77	100,740	246	24,734	231,512
1916----------	173	13,427	.81	62.54	90,797	253	22,937	214,692
1917----------	131	13,242	.65	65.93	82,290	261	21,457	200,841
1918----------	125	8,719	.75	52.38	68,332	260	17,786	166,472
1919----------	123	9,199	.69	51.35	75,505	253	19,138	179,135
1920----------	178	11,217	.82	51.82	86,488	267	23,127	216,465
1921----------	120	10,465	.71	62.16	77,185	233	17,988	168,363
1922----------	132	11,839	.68	61.23	79,081	261	20,658	193,362
1923----------	143	14,990	.60	62.69	92,455	276	25,546	239,109
1924----------	138	14,777	.58	62.35	94,242	269	25,328	236,983
1925----------	149	14,165	.64	60.74	91,872	273	25,046	233,222
1926----------	154	13,201	.67	57.28	91,146	271	24,708	230,464
1927----------	135	13,459	.59	58.57	91,517	271	24,783	229,806
1928----------	119	10,568	.53	46.98	89,667	272	24,397	224,953
1929----------	126	9,810	.59	46.32	85,561	268	22,968	211,766
1930----------	105	7,417	.56	39.77	80,633	255	20,559	186,502
1931----------	61	5,427	.46	40.58	69,200	224	15,527	133,750
1932----------	32	3,574	.34	38.14	56,866	195	11,114	93,710
1933----------	59	3,637	.67	41.38	61,927	183	11,362	87,888
1934----------	60	3,924	.63	41.19	64,331	204	13,108	95,259
1935----------	51	4,152	.46	37.73	73,005	200	14,623	110,033
1936----------	91	5,717	.62	38.87	80,022	236	18,874	147,064
1937----------	77	6,348	.49	40.10	84,094	241	20,264	158,299
1938----------	82	5,027	.61	37.58	77,497	223	17,256	133,766
1939----------	48	5,204	.33	36.18	79,449	236	18,726	143,847
1940----------	72	5,188	.49	35.23	79,509	240	19,121	147,244
1941----------	76	6,870	.44	39.67	86,123	260	22,370	173,165
1942----------	112	6,349	.62	35.11	84,270	271	22,808	180,836
1943----------	80	5,199	.52	33.48	69,877	274	19,136	155,280
1944----------	73	4,437	.56	34.32	58,476	268	15,691	129,302
1945----------	53	4,121	.42	32.41	58,180	264	15,376	127,168
1946----------	55	5,137	.35	32.40	70,265	274	19,262	158,528
1947----------	75	5,504	.44	32.00	75,245	279	20,996	171,979
1948----------	75	4,994	.42	27.88	77,344	284	21,993	179,111
1949----------	66	4,826	.36	26.48	82,209	275	22,569	182,258
1950----------	54	4,762	.28	25.12	85,730	272	23,346	189,535
1951----------	57	4,945	.30	25.87	84,802	277	23,470	191,113
1952----------	74	4,503	.40	24.14	81,879	279	22,844	186,552
1953----------	43	4,450	.23	23.45	83,641	278	23,248	189,777
1954----------	34	3,834	.19	21.81	78,910	273	21,506	175,817
1955----------	53	3,811	.30	21.68	78,238	274	21,470	175,775
1956----------	50	3,754	.28	21.06	80,093	272	21.776	178,281
1957----------	53	4,210	.29	22.96	84,126	266	22,410	183,394
1958----------	45	4,572	.24	24.47	88,448	264	23,353	186,821
1959----------	52	4,790	.26	24.03	91,523	(3/)	(3/)	199,321
1960----------	39	4,668	.19	23.07	95,304	(3/)	(3/)	202,366
1961----------	32	4,280	.17	22.21	91,371	257	23,524	192,705
1962----------	67	3,299	.35	17.05	92,241	254	23,393	193,453
1963----------	61	3,468	.31	17.91	91,960	256	23,553	193,685
1964----------	61	3,367	.32	17.91	87,859	260	22,873	188,000
1965----------	48	3,305	.25	17.04	89,580	263	23,535	194,000
1966----------	51	3,583	.27	18.78	85,826	269	23,113	190,787
1967----------	46	3,267	.25	17.54	84,765	266	22,548	186,227
1968----------	58	3,260	.31	17.47	84,084	268	22,543	186,620
1969----------	53	3,389	.28	18.12	83,149	272	22,586	187,003
1970----------	43	3,666	.23	19.90	82,010	269	22,082	184,225
1971----------	58	3,893	.31	21.09	82,806	267	22,126	184,615

1/ Injury rates before 1916 are believed not to be representative owing to probable incompleteness of reports of slight or minor injuries.

2/ Man-hours for 1911-1923 computed on assumption that weighted average workday was 9.36 hours, as shown by reports from representative operating companies for 1924.

3/ Not available.

APPENDIX A.--TABLES FOR 1970

TABLE A-1. - Injury experience by degree and worktime data on stone quarries and mills in the United States, by general work location, 1970

General work location	Injuries						Frequency rates per million man-hours			Severity rates per million man-hours			Active operations	Average men working daily	Average days active	Man-days worked	Man-hours worked
	Fatal	Nonfatal				All injuries	Fatal	Non-fatal	All injuries	Fatal	Non-fatal	All injuries					
		Permanent		Tempo-rary total	Total non-fatal												
		Total	Partial														
Underground mines:																	
Underground	1	-	1	85	86	87	0.21	18.31	18.52	1,277	356	1,633	158	2,250	255	572,643	4,698,115
Surface	2	-	-	38	38	40	1.47	27.90	29.37	8,811	722	9,533	-	621	261	162,163	1,361,930
Total or average	3	-	1	123	124	127	.50	20.46	20.96	2,970	438	3,409	158	2,871	256	734,806	6,060,045
Open quarries	24	-	40	1,541	1,581	1,605	.37	24.24	24.61	2,208	1,122	3,330	4,932	31,939	240	7,667,570	65,223,471
Other surface mining	2	-	1	59	60	62	1.32	39.49	40.80	7,898	980	8,878	25	474	306	144,997	1,519,440
Total or average, mining	29	-	42	1,723	1,765	1,794	.40	24.24	24.64	2,390	1,062	3,452	5,115	35,284	242	8,547,373	72,802,956
Mills	14	1	71	1,829	1,901	1,915	.13	17.06	17.19	754	780	1,534	3,373	46,726	290	13,534,977	111,422,161
Grand total or average	43	1	113	3,552	3,666	3,709	.23	19.90	20.13	1,400	891	2,292	8,488	82,010	269	22,082,350	184,225,117

TABLE A-2. - Number and average severity of injuries by degree at stone quarries and mills in the United States, by general work location and detailed cause, 1970

General work location and detailed cause of injury	Injuries						Average severity		
	Fatal	Nonfatal				All injuries	Permanent partial	Temporary total	All injuries
		Permanent		Temporary total	Total nonfatal				
		Total	Partial						
UNDERGROUND MINES									
Underground:									
Falls of roof or back:									
While mining	-	-	-	2	2	2	-	7	7
While loading	1	-	-	-	-	1	-	-	6,000
While testing or barring down back	-	-	-	3	3	3	-	48	48
All other	-	-	-	1	1	1	-	4	4
Falls of face or side: While mining	-	-	-	1	1	1	-	48	48
Sliding or falling material or objects: From car, bin, platform, or chute	-	-	-	1	1	1	-	16	16
Slips or falls of persons:									
On same level:									
While escaping another hazard	-	-	-	1	1	1	-	4	4
While handling material	-	-	-	2	2	2	-	61	61
While operating or moving machinery	-	-	-	2	2	2	-	2	2
All other	-	-	-	5	5	5	-	13	13
From an elevation:									
While operating or moving machinery	-	-	-	4	4	4	-	9	9
Caused by failure of scaffold, ladder, or other support	-	-	-	3	3	3	-	78	78
Handling material:									
Prop, stull, or timber	-	-	-	2	2	2	-	10	10
Ore, valuable mineral	-	-	-	10	10	10	-	8	8
Rock or waste	-	-	-	1	1	1	-	3	3
Rail	-	-	-	1	1	1	-	22	22
Wire or wire rope	-	-	-	4	4	4	-	9	9
Flying particle while handling material	-	-	-	2	2	2	-	7	7
All other	-	-	-	5	5	5	-	8	8
Handtools:									
Hammer or sledge	-	-	-	3	3	3	-	43	43
Crowbar or bar	-	-	-	2	2	2	-	14	14
In hand of fellow worker	-	-	1	-	1	1	50	-	50
All other	-	-	-	4	4	4	-	12	12
Stepping or kneeling on sharp or loose objects: While working on hands and knees	-	-	-	1	1	1	-	18	18
Striking or bumping against objects	-	-	-	2	2	2	-	36	36
Haulage:									
Cages, cars, or motors:									
Struck, run over, or squeezed between: Pulling, pushing, or dropping	-	-	-	1	1	1	-	10	10
Squeezed between cage, car, or motor, and other object: Pulling, pushing, or dropping	-	-	-	2	2	2	-	2	2
Shuttle cars, transloaders, and small mobile trucks: Struck or run over	-	-	-	1	1	1	-	4	4
Automobiles, gasoline or diesel trucks: While operating	-	-	-	1	1	1	-	4	4
Electricity: Cutout switch or junction box	-	-	-	2	2	2	-	61	61
Machinery:									
Power drill, rotary or percussive (except rock bolting)	-	-	-	5	5	5	-	29	29
Stationary machinery	-	-	-	2	2	2	-	20	20
While moving any machine except mining or loading	-	-	-	1	1	1	-	5	5
Particle set in motion by machinery (except rock bolting)	-	-	-	2	2	2	-	3	3
Fires or suffocation from fires	-	-	-	3	3	3	-	10	10
Miscellaneous causes:									
Irritation or burn from caustic or acid	-	-	-	2	2	2	-	10	10
All other	-	-	-	1	1	1	-	36	36
Total or average, underground	1	-	1	85	86	87	50	19	88
Surface at underground:									
Handling material:									
Ore, valuable mineral	-	-	-	1	1	1	-	73	73
All other	-	-	-	12	12	12	-	7	7
Haulage:									
Railroad cars and locomotives	-	-	-	3	3	3	-	8	8
Automobiles, gasoline or diesel trucks:									
While operating	2	-	-	6	6	8	-	114	1,585
Slip or fall on or from	-	-	-	9	9	9	-	8	8
Machinery:									
Power shovel, dragline, bulldozer, etc.	-	-	-	1	1	1	-	14	14
Particle set in motion by machinery	-	-	-	3	3	3	-	11	11
Miscellaneous causes:									
Acetylene or electric welding or cutting	-	-	-	2	2	2	-	3	3
Irritation or burn from caustic or acid	-	-	-	1	1	1	-	5	5
Total or average, surface at underground	2	-	-	38	38	40	-	26	325
Total or average, underground mines	3	-	1	123	124	127	50	21	163
OPEN QUARRIES									
Falls of face or side:									
While mining	2	-	-	5	5	7	-	51	1,751
While loading	-	-	-	1	1	1	-	19	19
All other	-	-	-	2	2	2	-	21	21
Sliding or falling material or objects:									
From car, bin, platform, or chute	-	-	-	25	25	25	-	15	15
Falling equipment or machinery under repair	-	-	-	2	2	2	-	36	36
From stockpile, dump, or gob	1	-	-	4	4	5	-	83	1,266
All other	-	-	-	4	4	4	-	35	35

TABLE A-2. - Number and average severity of injuries by degree at stone quarries and mills in the United States, by general work location and detailed cause, 1970 - Continued

General work location and detailed cause of injury	Injuries						Average severity		
	Fatal	Nonfatal				All injuries	Permanent partial	Temporary total	All injuries
		Permanent		Temporary total	Total nonfatal				
		Total	Partial						
OPEN QUARRIES - Continued									
Slips or falls of persons:									
On same level:									
While escaping another hazard	-	-	-	4	4	4	-	31	31
While handling material	-	-	-	34	34	34	-	14	14
Caused by handtool slipping or breaking	-	-	-	11	11	11	-	42	42
While operating or moving machinery	-	-	-	10	10	10	-	49	49
All other	-	-	1	76	77	77	50	19	19
From an elevation:									
While escaping another hazard	-	-	-	2	2	2	-	116	116
While handling material	-	-	2	49	51	51	142	35	39
Caused by handtool slipping or breaking	-	-	-	5	5	5	-	182	182
While operating or moving machinery	-	-	-	51	51	51	-	30	30
Caused by failure of scaffold, ladder, or other support	-	-	-	8	8	8	-	70	70
All other	-	-	1	63	64	64	750	29	41
Handling material:									
Prop, stull, or timber	-	-	-	13	13	13	-	27	27
Ore, valuable mineral	1	-	-	76	76	77	-	15	93
Rock or waste	-	-	1	56	57	57	516	26	34
Rail	-	-	-	1	1	1	-	3	3
Wire or wire rope	-	-	1	27	28	28	50	12	14
Flying particle while handling material	-	-	1	26	27	27	1,800	7	74
All other	-	-	13	242	255	255	431	28	49
Handtools:									
Pick	-	-	-	4	4	4	-	14	14
Axe, hatchet, or adz	-	-	-	1	1	1	-	18	18
Hammer or sledge	-	-	-	19	19	19	-	19	19
Crowbar or bar	-	-	-	23	23	23	-	40	40
Shovel	-	-	-	4	4	4	-	22	22
Saw	-	-	-	2	2	2	-	2	2
In hand of fellow worker	-	-	-	11	11	11	-	6	6
Flying particle from tool or object worked on	-	-	-	18	18	18	-	8	8
All other	-	-	-	27	27	27	-	15	15
Stepping or kneeling on sharp or loose objects:									
Stepping on sharp object	-	-	-	9	9	9	-	4	4
Stepping on loose object	-	-	-	28	28	28	-	11	11
Striking or bumping against objects	-	-	-	11	11	11	-	21	21
Haulage:									
Skips, cars, or motors:									
Struck, run over, or squeezed between: Coupling or uncoupling	-	-	2	-	2	2	225	-	225
Squeezed between skip, car, or motor, and other object:									
Operating or riding	-	-	-	1	1	1	-	22	22
Collision (while under control)	-	-	-	1	1	1	-	57	57
Shuttle cars, transloaders, and small mobile trucks:									
Struck or run over	-	-	-	1	1	1	-	212	212
All other	-	-	-	1	1	1	-	24	24
Railroad cars and locomotives	-	-	-	26	26	26	-	24	24
Automobiles, gasoline or diesel trucks:									
While operating	8	-	2	110	112	120	1,200	29	447
Slip or fall on or from	1	-	1	107	108	109	4,500	29	125
Water transportation	-	-	-	1	1	1	-	15	15
Miscellaneous haulage:									
Rope or cable on haulage	-	-	1	6	7	7	100	24	35
Slip or strain from moving car by hand	-	-	-	2	2	2	-	2	2
Flying particle	-	-	-	6	6	6	-	7	7
All other	-	-	1	5	6	6	75	22	30
Explosions of gas or dust: Caused by black powder	-	-	-	3	3	3	-	24	24
Explosives:									
Premature shot or blast	-	-	-	4	4	4	-	33	33
Misfire or digging into unexploded hole	1	-	-	2	2	3	-	6	2,004
Flying fragments	1	-	-	5	5	6	-	22	1,018
Suffocation from smoke	-	-	-	1	1	1	-	3	3
Transporting or handling explosive	-	-	-	1	1	1	-	110	110
All other	-	-	-	3	3	3	-	31	31
Electricity:									
Transformer, generator, or stationary motor	-	-	-	1	1	1	-	28	28
Power or lighting circuit	2	-	-	-	-	2	-	-	6,000
Locomotive or shuttle car	-	-	-	2	2	2	-	16	16
Mining or loading machine	1	-	-	1	1	2	-	5	3,002
Cutout switch or junction box	-	-	-	2	2	2	-	2	2
All other	-	-	-	4	4	4	-	15	15
Machinery:									
Belt conveyor	-	-	-	13	13	13	-	35	35
Chain, bucket, shaker, or screw conveyor	-	-	-	1	1	1	-	7	7
Power drill, rotary or percussive	1	-	3	54	57	58	493	29	156
Power shovel, dragline, bulldozer, etc.	3	-	5	72	77	80	2,195	45	402
Stationary machinery	-	-	3	23	26	26	367	59	95
While moving any machine except mining or loading	1	-	-	14	14	15	-	24	422
Particle set in motion by machinery	-	-	1	15	16	16	1,800	7	119
All other	-	-	1	8	9	9	75	32	37
Fires or suffocation from fires:									
Oil, gasoline, other flammable liquid	-	-	-	4	4	4	-	15	15
Miscellaneous causes:									
Flying particle from draft or wind	-	-	-	12	12	12	-	5	5
Acetylene or electric welding or cutting	-	-	-	22	22	22	-	4	4
Irritation or burn from caustic or acid	-	-	-	8	8	8	-	10	10
Burn from controlled fire	-	-	-	20	20	20	-	36	36
All other	-	-	-	25	25	25	-	27	27
Pneumoconiosis	1	-	-	-	-	1	-	-	6,000
Total or average, open quarries	24	-	40	1,541	1,581	1,605	800	27	135

TABLE A-2. - Number and average severity of injuries by degree at stone quarries and mills in the United States, by general work location and detailed cause, 1970 - Continued

General work location and detailed cause of injury	Injuries						Average severity		
	Fatal	Nonfatal				All injuries	Permanent partial	Temporary total	All injuries
		Permanent		Temporary total	Total nonfatal				
		Total	Partial						
OTHER SURFACE MINING									
Sliding or falling material or objects: Falling equipment or machinery under repair	-	-	-	1	1	1	-	40	40
Slips or falls of persons:									
On same level:									
While handling material	-	-	-	1	1	1	-	24	24
While operating or moving machinery	-	-	-	1	1	1	-	9	9
All other	-	-	-	1	1	1	-	57	57
From an elevation:									
While handling material	-	-	-	1	1	1	-	41	41
While operating or moving machinery	-	-	-	1	1	1	-	3	3
Caused by failure of scaffold, ladder, or other support	-	-	-	1	1	1	-	21	21
Other	1	-	-	2	2	3	-	16	2,011
Handling material:									
Rail	-	-	-	3	3	3	-	17	17
Wire or wire rope	-	-	-	4	4	4	-	7	7
All other	-	-	-	13	13	13	-	13	13
Handtools:									
Hammer or sledge	-	-	-	2	2	2	-	6	6
Crowbar or bar	-	-	-	2	2	2	-	6	6
All other	-	-	-	1	1	1	-	28	28
Striking or bumping against objects	-	-	-	6	6	6	-	16	16
Haulage:									
Water transportation:									
Fall of person	-	-	-	5	5	5	-	33	33
Rope or chain on boat or barge	1	-	1	2	3	4	450	8	1,616
All other	-	-	-	2	2	2	-	10	10
Machinery:									
Belt conveyor	-	-	-	1	1	1	-	21	21
Power shovel, dragline, bulldozer, etc.	-	-	-	3	3	3	-	34	34
Stationary machinery	-	-	-	2	2	2	-	10	10
Miscellaneous causes:									
Acetylene or electric welding or cutting	-	-	-	3	3	3	-	26	26
Burn from controlled fire	-	-	-	1	1	1	-	3	3
Total or average, other surface mining	2	-	1	59	60	62	450	18	218
Total or average, mining	29	-	42	1,723	1,765	1,794	774	26	140
MILLS									
Sliding or falling material or objects:									
Dropped or thrown by coworker	-	-	-	4	4	4	-	10	10
From car, bin, platform, or chute	-	-	1	38	39	39	900	23	45
Falling equipment or machinery under repair	-	-	-	1	1	1	-	6	6
All other	-	-	-	8	8	8	-	25	25
Slips or falls of persons:									
On same level:									
While escaping another hazard	-	-	-	2	2	2	-	9	9
While handling material	-	-	-	68	68	68	-	24	24
Caused by handtool slipping or breaking	-	-	-	11	11	11	-	16	16
While operating or moving machinery	-	-	-	4	4	4	-	33	33
All other	-	-	-	90	90	90	-	31	31
From an elevation:									
While escaping another hazard	-	-	-	2	2	2	-	23	23
While handling material	1	-	-	56	56	57	-	32	137
Caused by handtool slipping or breaking	-	-	-	3	3	3	-	14	14
While operating or moving machinery	-	-	-	14	14	14	-	42	42
Caused by failure of scaffold, ladder, or other support	1	-	1	25	26	27	150	35	260
All other	1	-	-	94	94	95	-	28	91
Handling material:									
Prop, stull, or timber	-	-	-	14	14	14	-	14	14
Ore, valuable mineral	2	-	5	156	161	163	166	18	96
Rock or waste	-	-	4	61	65	65	94	26	30
Rail	-	-	1	10	11	11	80	29	33
Wire or wire rope	-	-	-	12	12	12	-	17	17
Conveyor pan	-	-	-	2	2	2	-	3	3
Flying particle while loading car	-	-	-	1	1	1	-	1	1
Flying particle while handline material	-	-	1	30	31	31	1,800	6	64
All other	-	-	17	333	350	350	390	20	38
Handtools:									
Hammer or sledge	-	-	1	28	29	29	60	20	22
Crowbar or bar	-	-	2	35	37	37	230	20	31
Shovel	-	-	-	9	9	9	-	6	6
Saw	-	-	-	3	3	3	-	4	4
In hand of fellow worker	-	-	-	7	7	7	-	11	11
Flying particle from tool or object worked on	-	-	-	11	11	11	-	23	23
All other	-	-	2	16	18	18	60	16	21
Stepping or kneeling on sharp or loose objects:									
Stepping on sharp object	-	-	-	2	2	2	-	6	6
Stepping on loose object	-	-	-	23	23	23	-	35	35
Striking or bumping against objects	-	-	-	40	40	40	-	15	15

TABLE A-2. - Number and average severity of injuries by degree at stone quarries and mills in the United States, by general work location and detailed cause, 1970 - Continued

General work location and detailed cause of injury	Injuries						Average severity		
	Fatal	Nonfatal				All injuries	Permanent partial	Temporary total	All injuries
		Permanent		Temporary total	Total nonfatal				
		Total	Partial						
MILLS - Continued									
Haulage:									
Cages, cars, or motors:									
Squeezed between cage, car, or motor, and other object:									
Operating or riding	-	-	-	2	2	2	-	43	43
All other	-	-	-	1	1	1	-	3	3
Rersiling	-	-	-	2	2	2	-	11	11
Runaway (while not under control)	-	-	-	1	1	1	-	10	10
Shuttle cars, transloaders, and small mobile trucks:									
Squeezed between shuttle car, transloader, or small mobile truck, and other object	-	-	-	1	1	1	-	20	20
All other	-	-	-	2	2	2	-	13	13
Railroad cars and locomotives	2	-	3	60	63	65	1,850	41	308
Automobiles, gasoline or diesel trucks:									
While operating	-	-	2	28	30	30	75	44	46
Slip or fall on or from	-	-	-	34	34	34	-	24	24
Water transportation:									
Rope or chain on boat or barge	-	-	-	2	2	2	-	34	34
All other	-	-	-	1	1	1	-	7	7
Miscellaneous haulage:									
Rope or cable on haulage	-	-	-	3	3	3	-	81	81
Slip or strain from moving car by hand	-	-	-	1	1	1	-	18	18
Riding or getting on or off conveyor belt	1	-	-	-	-	1	-	-	6,000
All other	-	-	-	12	12	12	-	18	18
Explosions of gas or dust:									
Caused by match, igniter, or smoking	-	-	-	1	1	1	-	93	93
All other	-	-	-	5	5	5	-	69	69
Electricity:									
Trolley wire or pole	-	-	-	1	1	1	-	36	36
Transformer, generator, or stationary motor	-	1	-	-	1	1	-	-	6,000
Power or lighting circuit	1	-	-	5	5	6	-	47	1,039
Cutout switch or junction box	-	-	-	12	12	12	-	16	16
All other	-	-	-	1	1	1	-	8	8
Machinery:									
Belt conveyor	2	-	8	58	66	68	1,459	59	398
Chain, bucket, shaker, or screw conveyor	-	-	1	14	15	15	550	58	91
Power drill, rotary or percussive	-	-	-	12	12	12	-	41	41
Power shovel, dragline, bulldozer, etc.	-	-	-	35	35	35	-	33	33
Stationary machinery	2	-	19	86	105	107	258	25	178
While moving any machine except mining or loading	1	-	1	15	16	17	300	40	406
Particle set in motion by machinery	-	-	-	22	22	22	-	7	7
All other	-	-	-	6	6	6	-	23	23
Fires or suffocation from fires:									
Oil, gasoline, other flammable liquid	-	-	-	9	9	9	-	12	12
All other	-	-	-	1	1	1	-	30	30
Miscellaneous causes:									
Flying particle from draft or wind	-	-	-	5	5	5	-	2	2
Carbide - gas or burns from	-	-	-	1	1	1	-	18	18
Acetylene or electric welding or cutting	-	-	-	30	30	30	-	6	6
Irritation or burn from caustic or acid	-	-	-	76	76	76	-	12	12
Burn from controlled fire	-	-	-	38	38	38	-	26	26
All other	-	-	2	32	34	34	340	36	54
Pneumoconiosis	-	-	-	1	1	1	-	17	17
Total or average, mills	14	1	71	1,829	1,901	1,915	496	25	89
Grand total or average	43	1	113	3,552	3,666	3,709	599	25	114

TABLE A-3. - Fatal injuries and distribution by part of body injured at stone quarries and mills in the United States, by general work location 1/ and detailed cause, 1970

General work location and detailed cause	Injuries										Percentage distribution
	Head, face, neck (excl. eye)	Eye	Trunk	Arm (above wrist)	Wrist, hand, fingers	Leg (above ankle)	Ankle, foot, toes	Multiple	Unclassified (no data)	Total	
UNDERGROUND MINES											
Underground:											
Falls of roof or back:											
While loading	-	-	-	-	-	-	-	1	-	1	100.00
Total, underground	-	-	-	-	-	-	-	1	-	1	-
Percentage distribution	-	-	-	-	-	-	-	100.00	-	-	-
Surface at underground:											
Haulage:											
Automobiles, gasoline or diesel trucks: While operating	-	-	1	-	-	-	-	1	-	2	100.00
Total, surface at underground	-	-	1	-	-	-	-	1	-	2	-
Percentage distribution	-	-	50.00	-	-	-	-	50.00	-	-	-
Total, underground mines	-	-	1	-	-	-	-	2	-	3	-
Percentage distribution	-	-	33.33	-	-	-	-	66.67	-	-	-
OPEN QUARRIES											
Falls of face or side: While mining	1	-	-	-	-	-	-	1	-	2	8.33
Sliding or falling material or objects: From stockpile, dump, or gob	-	-	-	-	-	-	-	1	-	1	4.17
Handling material: Ore, valuable mineral	-	-	-	-	-	-	-	1	-	1	4.17
Haulage:											
Automobiles, gasoline or diesel trucks:											
While operating	-	-	2	-	-	-	-	6	-	8	33.33
Slip or fall on or from	-	-	1	-	-	-	-	-	-	1	4.17
Explosives:											
Misfire or digging into unexploded hole	-	-	-	-	-	-	-	1	-	1	4.17
Flying fragments	-	-	-	-	-	-	-	1	-	1	4.17
Electricity:											
Power or lighting circuit	-	-	-	-	-	-	-	2	-	2	8.33
Mining or loading machine	-	-	-	-	-	-	-	1	-	1	4.17
Machinery:											
Power drill, rotary or percussive	-	-	1	-	-	-	-	-	-	1	4.17
Power shovel, dragline, bulldozer, etc.	-	-	-	-	-	-	-	3	-	3	12.50
While moving any machine except mining or loading	-	-	-	-	-	-	-	1	-	1	4.17
Pneumoconiosis	-	-	1	-	-	-	-	-	-	1	4.17
Total, open quarries	1	-	5	-	-	-	-	18	-	24	-
Percentage distribution	4.17	-	20.83	-	-	-	-	75.00	-	-	-
OTHER SURFACE MINING											
Slips or falls of persons: From an elevation	-	-	1	-	-	-	-	-	-	1	50.00
Haulage: Water transportation: Rope or chain on boat or barge	1	-	-	-	-	-	-	-	-	1	50.00
Total, other surface mining	1	-	1	-	-	-	-	-	-	2	-
Percentage distribution	50.00	-	50.00	-	-	-	-	-	-	-	-
Total, mining	2	-	7	-	-	-	-	20	-	29	-
Percentage distribution	6.90	-	24.14	-	-	-	-	68.97	-	-	-
MILLS											
Slips or falls of persons:											
From an elevation:											
While handling material	-	-	-	-	-	-	-	1	-	1	7.14
Caused by failure of scaffold, ladder, or other support	-	-	-	-	-	-	-	1	-	1	7.14
All other	-	-	-	-	-	-	-	1	-	1	7.14
Handling material: Ore, valuable mineral	-	-	1	-	-	-	-	1	-	2	14.29
Haulage:											
Railroad cars and locomotives	-	-	1	-	-	-	-	1	-	2	14.29
Miscellaneous haulage: Riding or getting on or off conveyor belt	-	-	-	-	-	-	-	1	-	1	7.14
Electricity: Power or lighting circuit	-	-	-	-	-	-	-	1	-	1	7.14
Machinery:											
Belt conveyor	1	-	-	-	-	-	-	1	-	2	14.29
Stationary machinery	-	-	1	-	-	-	-	1	-	2	14.29
While moving any machine except mining or loading	-	-	-	-	-	-	-	1	-	1	7.14
Total, mills	1	-	3	-	-	-	-	10	-	14	-
Percentage distribution	7.14	-	21.43	-	-	-	-	71.43	-	-	-
Grand total	3	-	10	-	-	-	-	30	-	43	-
Percentage distribution	6.98	-	23.26	-	-	-	-	69.77	-	-	-

TABLE A-4. - Injuries, distribution, average severity by degree, and injury rates at stone quarries and mills in the United States, by general work location and part of body injured, 1970

General work location and part of body injured	Injuries						Percentage distribution of all injuries 1/	Average severity			Frequency rates per million man-hours		Severity rates per million man-hours	
	Fatal	Nonfatal				All injuries		Permanent partial	Temporary total	All injuries	Fatal	Nonfatal	Fatal	Nonfatal
		Permanent		Temporary total	Total nonfatal									
		Total	Partial											
UNDERGROUND MINES														
Underground (including shaft and slope):														
Head, face, neck (excl. eye)	-	-	-	8	8	8	10.7	-	7	7	-	1.70	-	11
Eye	-	-	-	2	2	2	2.7	-	6	6	-	.43	-	2
Trunk	-	-	-	25	25	25	33.3	-	23	23	-	5.32	-	123
Arm (above wrist)	-	-	-	2	2	2	2.7	-	9	9	-	.43	-	4
Wrist, hand, fingers	-	-	1	9	10	10	13.3	50	21	24	-	2.13	-	50
Leg (above ankle)	-	-	-	12	12	12	16.0	-	17	17	-	2.55	-	43
Ankle, foot, toes	-	-	-	8	8	8	10.7	-	25	25	-	1.70	-	43
Multiple	1	-	-	7	7	8	10.7	-	19	766	0.21	1.49	1,277	28
Unclassified (no data)	-	-	-	12	12	12	-	-	20	20	-	2.55	-	52
Total or average	1	-	1	85	86	87	-	50	19	88	.21	18.31	1,277	356
Surface at underground:														
Head, face, neck (excl. eye)	-	-	-	2	2	2	5.9	-	4	4	-	1.47	-	6
Eye	-	-	-	3	3	3	8.8	-	8	8	-	2.20	-	18
Trunk	1	-	-	7	7	8	23.5	-	25	772	.73	5.14	4,406	128
Arm (above wrist)	-	-	-	1	1	1	2.9	-	14	14	-	.73	-	10
Wrist, hand, fingers	-	-	-	6	6	6	17.6	-	4	4	-	4.41	-	18
Leg (above ankle)	-	-	-	5	5	5	14.7	-	11	11	-	3.67	-	41
Ankle, foot, toes	-	-	-	5	5	5	14.7	-	21	21	-	3.67	-	76
Multiple	1	-	-	3	3	4	11.8	-	107	1,580	.73	2.20	4,406	236
Unclassified (no data)	-	-	-	6	6	6	-	-	43	43	-	4.41	-	189
Total or average	2	-	-	38	38	40	-	-	26	325	1.47	27.90	8,811	722
Total or average, underground mines	3	-	1	123	124	127	-	50	21	163	.50	20.46	2,970	438
OPEN QUARRIES														
Head, face, neck (excl. eye)	1	-	1	73	74	75	5.7	600	17	105	.02	1.13	92	28
Eye	-	-	2	69	71	71	5.4	1,800	5	56	-	1.09	-	60
Trunk	5	-	6	394	400	405	30.7	279	31	109	.08	6.13	460	214
Arm (above wrist)	-	-	-	62	62	62	4.7	-	39	39	-	.95	-	37
Wrist, hand, fingers	-	-	25	171	196	196	14.9	565	18	88	-	3.01	-	264
Leg (above ankle)	-	-	2	191	193	193	14.6	2,400	31	56	-	2.96	-	165
Ankle, foot, toes	-	-	3	195	198	198	15.0	900	22	35	-	3.04	-	107
Multiple	18	-	1	99	100	118	9.0	4,500	39	986	.28	1.53	1,656	129
Unclassified (no data)	-	-	-	287	287	287	-	-	27	27	-	4.40	-	117
Total or average	24	-	40	1,541	1,581	1,605	-	800	27	135	.37	24.24	2,208	1,122
OTHER SURFACE MINING														
Head, face, neck (excl. eye)	1	-	-	2	2	3	6.1	-	24	2,016	.66	1.32	3,949	32
Eye	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trunk	1	-	-	21	21	22	44.9	-	21	293	.66	13.82	3,949	288
Arm (above wrist)	-	-	-	4	4	4	8.2	-	20	20	-	2.63	-	53
Wrist, hand, fingers	-	-	-	7	7	7	14.3	-	13	13	-	4.61	-	60
Leg (above ankle)	-	-	1	6	7	7	14.3	450	11	74	-	4.61	-	339
Ankle, foot, toes	-	-	-	6	6	6	12.2	-	17	17	-	3.95	-	66
Multiple	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unclassified (no data)	-	-	-	13	13	13	-	-	16	16	-	8.56	-	141
Total or average	2	-	1	59	60	62	-	450	18	218	1.32	39.49	7,898	980
Total or average, mining	29	-	42	1,723	1,765	1,794	-	774	26	140	.40	24.24	2,390	1,062
MILLS														
Head, face, neck (excl. eye)	1	-	-	89	89	90	5.1	-	20	87	.01	.80	54	16
Eye	-	-	1	131	132	132	7.6	1,800	8	22	-	1.18	-	26
Trunk	3	1	9	495	505	508	29.1	183	24	74	.03	4.53	162	175
Arm (above wrist)	-	-	3	107	110	110	6.3	4,500	27	149	-	.99	-	147
Wrist, hand, fingers	-	-	51	242	293	293	16.8	209	20	53	-	2.63	-	138
Leg (above ankle)	-	-	1	195	196	196	11.2	4,500	32	55	-	1.76	-	97
Ankle, foot, toes	-	-	6	285	291	291	16.6	518	24	35	-	2.61	-	90
Multiple	10	-	-	118	118	128	7.3	-	48	513	.09	1.06	538	51
Unclassified (no data)	-	-	-	167	167	167	-	-	26	26	-	1.50	-	39
Total or average, mills	14	1	71	1,829	1,901	1,915	-	496	25	89	.13	17.06	754	780
Grand total or average	43	1	113	3,552	3,666	3,709	-	599	25	114	.23	19.90	1,400	891

1/ Number of injuries for which part of body is "Unclassified" is excluded in calculating percentages. Therefore, 100 percent for underground is 75; for surface 34; for open pit 1,318; for other surface mining 49; and for mills 1,748. Distribution percentages may not add to 100.0 because of independent rounding.

TABLE A-5. - Injuries, distribution, average severity by degree, and injury rates at stone quarries and mills in the United States, by general work location and nature of injury, 1970

General work location and nature of injury	Injuries						Percentage distribution of all injuries 1/	Average severity			Frequency rates per million man-hours		Severity rates per million man-hours	
	Fatal	Nonfatal				All injuries		Permanent partial	Temporary total	All injuries	Fatal	Nonfatal	Fatal	Nonfatal
		Permanent		Temporary total	Total nonfatal									
		Total	Partial											
UNDERGROUND MINES														
Underground:														
Amputation, enucleation	-	-	1	-	1	1	1.3	50	-	50	-	0.21	-	11
Asphyxiation	-	-	-	2	2	2	2.7	-	10	10	-	.43	-	4
Crushing, contusion, bruise	-	-	-	24	24	24	32.0	-	10	10	-	5.11	-	53
Burn, scald (except chemical)	-	-	-	1	1	1	1.3	-	61	61	-	.21	-	13
Chemical burn	-	-	-	1	1	1	1.3	-	10	10	-	.21	-	2
Cut, laceration, puncture	-	-	-	15	15	15	20.0	-	8	8	-	3.19	-	25
Foreign body in eye	-	-	-	1	1	1	1.3	-	1	1	-	.21	-	(2/)
Fracture	1	-	-	7	7	8	10.7	-	56	799	0.21	1.49	1,277	84
Strain, sprain, dislocation	-	-	-	21	21	21	28.0	-	25	25	-	4.47	-	112
Other, not elsewhere classified	-	-	-	1	1	1	1.3	-	4	4	-	.21	-	1
Unclassified (no data)	-	-	-	12	12	12	-	-	20	20	-	2.55	-	52
Total or average	1	-	1	85	86	87	-	50	19	88	.21	18.31	1,277	356
Surface at underground:														
Crushing, contusion, bruise	-	-	-	8	8	8	23.5	-	26	26	-	5.87	-	151
Chemical burn	-	-	-	1	1	1	2.9	-	5	5	-	.73	-	4
Radiation, radiating substance	-	-	-	1	1	1	2.9	-	3	3	-	.73	-	2
Cut, laceration, puncture	-	-	-	7	7	7	20.6	-	5	5	-	5.14	-	23
Foreign body in eye	-	-	-	2	2	2	5.9	-	10	10	-	1.47	-	15
Fracture	2	-	-	3	3	5	14.7	-	135	2,481	1.47	2.20	8,811	297
Strain, sprain, dislocation	-	-	-	9	9	9	26.5	-	6	6	-	6.61	-	37
Concussion (cerebral)	-	-	-	1	1	1	2.9	-	6	6	-	.73	-	4
Unclassified (no data)	-	-	-	6	6	6	-	-	43	43	-	4.41	-	189
Total or average	2	-	-	38	38	40	-	-	26	325	1.47	27.90	8,811	722
Total or average, underground mines	3	-	1	123	124	127	-	50	21	163	.50	20.46	2,970	438
OPEN QUARRIES														
Amputation, enucleation	-	-	28	-	28	28	2.1	853	-	853	-	.43	-	366
Asphyxiation	1	-	-	2	2	3	.2	-	6	2,004	.02	.03	92	(2/)
Crushing, contusion, bruise	3	-	2	291	293	296	22.5	1,500	15	86	.05	4.49	276	112
Burn, scald (except chemical)	-	-	-	40	40	40	3.0	-	20	20	-	.61	-	12
Chemical burn	-	-	-	8	8	8	.6	-	10	10	-	.12	-	1
Radiation, radiating substance	-	-	-	12	12	12	.9	-	4	4	-	.18	-	1
Cut, laceration, puncture	-	-	1	169	170	170	12.9	1,800	13	23	-	2.61	-	61
Dermatitis	-	-	-	7	7	7	.5	-	10	10	-	.11	-	1
Drowning	1	-	-	-	-	1	.1	-	-	6,000	.02	-	92	-
Electric shock	3	-	-	4	4	7	.5	-	20	2,583	.05	.06	276	1
Foreign body in eye	-	-	-	35	35	35	2.7	-	4	4	-	.54	-	2
Fracture	15	-	3	258	261	276	20.9	441	61	388	.23	4.00	1,380	262
Heat exhaustion, sunstroke	-	-	-	4	4	4	.3	-	14	14	-	.06	-	1
Hernia (inguinal)	-	-	4	17	21	21	1.6	50	93	85	-	.32	-	27
Poisoning (systemic)	-	-	-	4	4	4	.3	-	8	8	-	.06	-	(2/)
Strain, sprain, dislocation	-	-	1	393	394	394	29.9	1,200	21	24	-	6.04	-	144
Pneumoconiosis (except silicosis)	1	-	-	-	-	1	.1	-	-	6,000	.02	-	92	-
Concussion (cerebral)	-	-	-	9	9	9	.7	-	21	21	-	.14	-	3
Hearing loss, impairment	-	-	1	-	1	1	.1	600	-	600	-	.02	-	9
Other, not elsewhere classified	-	-	-	1	1	1	.1	-	8	8	-	.02	-	(2/)
Unclassified (no data)	-	-	-	287	287	287	-	-	27	27	-	4.40	-	117
Total or average	24	-	40	1,541	1,581	1,605	-	800	27	135	.37	24.24	2,208	1,122

1/ Number of injuries for which nature of injury is "Unclassified" is excluded in calculating percentages. Therefore, 100 percent for underground is 75; for surface, 34; for open quarries, 1,318; for other surface mining, 49; and for mills, 1,748. Distribution percentages may not add to 100.0 because of independent rounding.

2/ Less than 0.5.

TABLE A-5. - Injuries, distribution, average severity by degree, and injury rates at stone quarries and mills in the United States, by general work location and nature of injury, 1970 - Continued

General work location and nature of injury	Injuries						Percentage distribution of all injuries 1/	Average severity			Frequency rates per million man-hours		Severity rates per million man-hours	
	Fatal	Nonfatal				All injuries		Permanent partial	Temporary total	All injuries	Fatal	Nonfatal	Fatal	Nonfatal
		Permanent		Temporary total	Total nonfatal									
		Total	Partial											
OTHER SURFACE MINING														
Crushing, contusion, bruise	-	-	-	16	16	16	32.7	-	17	17	-	10.53	-	180
Burn, scald (except chemical)	-	-	-	3	3	3	6.1	-	18	18	-	1.97	-	36
Cut, laceration, puncture	-	-	-	6	6	6	12.2	-	11	11	-	3.95	-	43
Drowning	1	-	-	-	-	1	2.0	-	-	6,000	.66	-	3,949	-
Fracture	1	-	1	4	5	6	12.2	450	20	1,088	.66	3.29	3,949	348
Hernia (inguinal)	-	-	-	1	1	1	2.0	-	42	42	-	.66	-	28
Strain, sprain, dislocation	-	-	-	16	16	16	32.7	-	19	19	-	10.53	-	204
Unclassified (no data)	-	-	-	13	13	13	-	-	16	16	-	8.56	-	141
Total or average	2	-	1	59	60	62	-	450	18	218	1.32	39.49	7,898	980
Total or average, mining	29	-	42	1,723	1,765	1,794	-	774	26	140	.40	24.24	2,390	1,062
MILLS														
Amputation, enucleation	-	-	52	-	52	52	3.0	550	-	550	-	.47	-	257
Asphyxiation	1	-	-	3	3	4	.2	-	13	1,510	.01	.03	54	(2/)
Crushing, contusion, bruise	-	-	-	366	366	366	20.9	-	12	12	-	3.28	-	41
Burn, scald (except chemical)	-	-	-	78	78	78	4.5	-	25	25	-	.70	-	17
Chemical burn	-	-	-	66	66	66	3.8	-	12	12	-	.59	-	7
Radiation, radiating substance	-	-	-	15	15	15	.9	-	3	3	-	.13	-	(2/)
Cut, laceration, puncture	1	-	3	220	223	224	12.8	707	18	54	.01	2.00	54	54
Dermatitis	-	-	-	1	1	1	.1	-	17	17	-	.01	-	(2/)
Electric shock	1	-	-	4	4	5	.3	-	10	1,208	.01	.04	54	(2/)
Foreign body in eye	-	-	-	40	40	40	2.3	-	5	5	-	.36	-	2
Fracture	11	1	8	318	327	338	19.3	426	58	278	.10	2.93	592	250
Heat exhaustion, sunstroke	-	-	-	2	2	2	.1	-	38	38	-	.02	-	1
Hernia (inguinal)	-	-	6	24	30	30	1.7	50	53	53	-	.27	-	14
Poisoning (systemic)	-	-	-	5	5	5	.3	-	8	8	-	.04	-	(2/)
Strain, sprain, dislocation	-	-	1	511	512	512	29.3	300	19	20	-	4.60	-	90
Concussion (cerebral)	-	-	-	5	5	5	.3	-	32	32	-	.04	-	1
Hernia (except inguinal)	-	-	-	1	1	1	.1	-	77	77	-	.01	-	1
Freezing, frostbite, etc.	-	-	1	-	1	1	.1	480	-	480	-	.01	-	4
Inflammation or irritation of joints, tendons, muscles	-	-	-	2	2	2	.1	-	10	10	-	.02	-	(2/)
Other, not elsewhere classified	-	-	-	1	1	1	.1	-	12	12	-	.01	-	(2/)
Unclassified (no data)	-	-	-	167	167	167	-	-	26	26	-	1.50	-	39
Total or average, mills	14	1	71	1,829	1,901	1,915	-	496	25	89	.13	17.06	754	780
Grand total or average	43	1	113	3,552	3,666	3,709	-	599	25	114	.23	19.90	1,400	891

1/ Number of injuries for which nature of injury is "Unclassified" is excluded in calculating percentages. Therefore, 100 percent for underground is 75; for surface, 34; for open quarries, 1,318; for other surface mining, 49; and for mills, 1,748. Distribution percentages may not add to 100.0 because of independent rounding.

2/ Less than 0.5.

TABLE A-6. - Injury experience and worktime data on stone quarries and mills in the United States, by general work location and employment size group, 1970

General work location and employment size group	Injuries			Frequency rates per million man-hours			Severity rates per million man-hours			Active operations	Average men working daily	Average days active	Man-days worked	Man-hours worked
	Fatal	Nonfatal	Total	Fatal	Nonfatal	Total	Fatal	Nonfatal	Total					
Underground mines (includes surface work):														
1-4	-	-	-	-	-	-	-	-	-	30	84	211	17,727	149,254
5-9	-	8	8	-	14.37	14.37	-	226	226	38	265	251	66,572	556,590
10-19	1	33	34	0.87	28.65	29.52	5,209	663	5,872	41	556	246	136,993	1,151,873
20-34	1	28	29	.69	19.46	20.15	4,169	547	4,716	29	696	244	170,109	1,439,142
35-49	1	14	15	1.18	16.46	17.64	7,056	539	7,594	9	367	280	102,925	850,372
50-99	-	24	24	-	26.66	26.66	-	391	391	7	431	264	113,897	900,149
100-149	-	17	17	-	16.79	16.79	-	168	168	4	472	268	126,583	1,012,665
Total or average	3	124	127	.50	20.46	20.96	2,970	438	3,409	158	2,871	256	734,806	6,060,045
Open quarries:														
1-4	2	285	287	.21	29.49	29.70	1,242	1,932	3,174	2,935	5,450	211	1,152,642	9,662,863
5-9	4	346	350	.30	25.93	26.23	1,799	1,356	3,155	1,038	6,728	232	1,558,221	13,342,901
10-19	8	399	407	.47	23.37	23.84	2,812	872	3,684	628	8,227	241	1,983,041	17,072,732
20-34	6	258	264	.50	21.42	21.92	2,989	706	3,695	223	5,579	257	1,432,851	12,043,359
35-49	1	101	102	.20	20.08	20.28	1,193	687	1,880	54	2,178	265	577,824	5,029,017
50-99	1	177	178	.15	26.25	26.40	890	1,349	2,239	49	3,166	254	804,300	6,742,769
100-149	2	15	17	1.50	11.28	12.78	9,024	341	9,365	5	611	260	158,691	1,329,830
Total or average	24	1,581	1,605	.37	24.24	24.61	2,208	1,122	3,330	4,932	31,939	240	7,667,570	65,223,471
Other surface mining:														
1-4	-	-	-	-	-	-	-	-	-	3	7	172	1,204	9,628
5-9	-	-	-	-	-	-	-	-	-	4	27	296	7,993	77,651
10-19	2	5	7	10.48	26.20	36.68	62,877	341	63,217	5	76	280	21,283	190,850
20-34	-	45	45	-	51.24	51.24	-	1,426	1,426	10	245	318	77,818	878,151
35-49	-	10	10	-	27.54	27.54	-	474	474	3	119	308	36,699	363,160
Total or average	2	60	62	1.32	39.49	40.80	7,898	980	8,878	25	474	306	144,997	1,519,440
Total or average, mining	29	1,765	1,794	.40	24.24	24.64	2,390	1,062	3,452	5,115	35,284	242	8,547,373	72,802,956
Mills:														
1-4	3	248	251	.46	38.31	38.77	2,780	1,431	4,212	1,937	3,426	223	762,921	6,473,725
5-9	3	234	237	.41	31.72	32.13	2,440	1,364	3,804	540	3,552	242	860,581	7,376,425
10-19	2	353	355	.17	30.07	30.24	1,022	1,148	2,171	394	5,230	256	1,339,530	11,738,328
20-34	3	253	256	.29	24.09	24.38	1,714	1,402	3,116	176	4,504	276	1,240,869	10,502,357
35-49	-	119	119	-	17.54	17.54	-	891	891	67	2,843	294	836,168	6,784,901
50-99	2	339	341	.07	11.49	11.56	407	586	993	159	11,585	315	3,653,713	29,493,465
100-149	1	190	191	.05	10.00	10.05	316	554	870	63	7,641	308	2,352,500	19,001,039
150-249	-	117	117	-	9.46	9.46	-	304	304	29	5,147	299	1,540,980	12,373,992
250 or more	-	48	48	-	6.25	6.25	-	229	229	8	2,798	339	947,715	7,677,929
Total or average, mills	14	1,901	1,915	.13	17.06	17.19	754	780	1,534	3,373	46,726	290	13,534,977	111,422,161
Grand total or average	43	3,666	3,709	.23	19.90	20.13	1,400	891	2,292	8,488	82,010	269	22,082,350	184,225,117

TABLE A-7. - Injuries by degree at stone quarries and mills in the United States, by State [1/], 1970

State	Injuries											
	At quarry						At mill					
	Fatal	Nonfatal				All injuries	Fatal	Nonfatal				All injuries
		Permanent		Temporary total	Total nonfatal			Permanent		Temporary total	Total nonfatal	
		Total	Partial					Total	Partial			
Alabama	-	-	-	18	18	18	1	-	-	36	36	37
Alaska	1	-	-	14	14	15	-	-	-	3	3	3
Arizona	-	-	-	6	6	6	-	-	-	3	3	3
Arkansas	-	-	1	32	33	33	-	-	-	44	44	44
California	3	-	2	68	70	73	-	-	2	62	64	64
Colorado	-	-	-	11	11	11	-	-	-	8	8	8
Connecticut	-	-	-	16	16	16	-	-	-	14	14	14
Florida	2	-	-	58	58	60	1	-	2	61	63	64
Georgia	1	-	2	65	67	68	-	-	4	94	98	98
Hawaii	-	-	-	32	32	32	-	-	-	25	25	25
Idaho	-	-	-	5	5	5	-	-	-	4	4	4
Illinois	2	-	2	62	64	66	1	-	4	105	109	110
Indiana	1	-	2	52	54	55	-	-	6	53	59	59
Iowa	-	-	2	50	52	52	1	-	-	47	47	48
Kansas	-	-	-	25	25	25	-	-	-	26	26	26
Kentucky	1	-	2	77	79	80	-	-	-	32	32	32
Louisiana	-	-	-	23	23	23	-	-	2	24	26	26
Maine	-	-	-	5	5	5	-	-	-	-	-	-
Maryland	-	-	-	54	54	54	-	-	1	42	43	43
Massachusetts	-	-	-	14	14	14	1	-	1	31	32	33
Michigan	-	-	-	24	24	24	-	-	2	31	33	33
Minnesota	-	-	-	22	22	22	-	-	2	49	51	51
Mississippi	-	-	-	1	1	1	-	-	-	-	-	-
Missouri	1	-	2	68	70	71	-	-	10	111	121	121
Montana	-	-	-	12	12	12	-	-	-	9	9	9
Nebraska	-	-	-	13	13	13	-	-	-	18	18	18
Nevada	-	-	-	6	6	6	-	-	-	15	15	15
New Hampshire	-	-	-	5	5	5	-	-	-	8	8	8
New Jersey	-	-	-	53	53	53	-	-	-	36	36	36
New Mexico	-	-	-	7	7	7	-	-	-	5	5	5
New York	2	-	2	52	54	56	1	-	2	68	70	71
North Carolina	-	-	1	24	25	25	1	-	1	43	44	45
Ohio	-	-	3	97	100	100	-	-	4	126	130	130
Oklahoma	-	-	2	38	40	40	-	-	-	36	36	36
Oregon	1	-	-	41	41	42	-	-	1	41	42	42
Pennsylvania	4	-	7	125	132	136	1	-	7	134	141	142
Rhode Island	-	-	-	1	1	1	-	-	-	1	1	1
South Carolina	1	-	-	11	11	12	1	-	-	12	12	13
South Dakota	1	-	-	26	26	27	-	-	-	5	5	5
Tennessee	3	-	4	59	63	66	1	-	7	65	72	73
Texas	1	-	2	116	118	119	1	1	5	123	129	130
Utah	-	-	-	7	7	7	-	-	-	4	4	4
Vermont	-	-	2	47	49	49	-	-	2	28	30	30
Virginia	3	-	2	68	70	73	-	-	1	77	78	78
Washington	-	-	1	22	23	23	-	-	1	12	13	13
West Virginia	-	-	1	31	32	32	1	-	3	17	20	21
Wisconsin	-	-	-	59	59	59	2	-	1	37	38	40
Wyoming	1	-	-	1	1	2	-	-	-	4	4	4
Total	29	-	42	1,723	1,765	1,794	14	1	71	1,829	1,901	1,915

1/ No injuries were reported at stone quarries and mills for States not listed.

TABLE A-8. - Fatal injuries by general work location and main cause at stone quarries and mills in the United States, by State 1/, 1970

State	Underground mines					Open quarries									Other surface mining			Total, mining activities	Mills						Grand total
	Underground		Surface		Total, underground mines	Falls of face or side	Sliding or falling material or objects	Handling material	Haulage	Explosives	Electricity	Machinery	Pneumoconiosis	Total, open quarries	Slips or falls of persons	Haulage	Total, other surface mining		Slips or falls of persons	Handling material	Haulage	Electricity	Machinery	Total, mills	
	Falls of roof or back	Total, underground	Haulage	Total, surface																					
Alabama	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1
Alaska	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	1
California	-	-	-	-	-	-	-	1	-	-	1	1	-	3	-	-	-	3	-	-	-	-	-	-	3
Florida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	2	-	1	-	-	-	1	3
Georgia	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	1	-	-	-	-	-	-	1
Illinois	-	-	-	-	-	-	-	-	2	-	-	-	-	2	-	-	-	2	1	-	-	-	-	1	3
Indiana	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	1	-	-	-	-	-	-	1
Iowa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	1
Kentucky	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1
Missouri	1	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1
New York	-	-	-	-	-	-	-	-	1	-	-	1	-	2	-	-	-	2	-	-	-	-	1	1	3
North Carolina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	1
Oregon	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	1	-	-	-	-	-	-	1
Pennsylvania	-	-	-	-	-	1	1	-	2	-	-	-	-	4	-	-	-	4	1	-	-	-	-	1	5
South Carolina	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	1	-	-	1	-	-	1	2
South Dakota	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	1
Tennessee	-	-	-	-	-	-	-	-	1	-	2	-	-	3	-	-	-	3	-	-	-	1	-	1	4
Texas	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	1	1	-	-	-	-	1	2
Virginia	-	-	-	-	-	-	-	-	1	-	-	1	1	3	-	-	-	3	-	-	-	-	-	-	3
West Virginia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	1
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2
Wyoming	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1
Total	1	1	2	2	3	2	1	1	9	2	3	5	1	24	1	1	2	29	3	2	3	1	5	14	43

1/ No fatal injuries were reported at stone quarries and mills for States not listed.

TABLE A-9. - Nonfatal injuries by general work location and main cause at stone quarries and mills in the United States, by State 1/, 1970

State	Underground mines																			
	Underground														Surface					
	Falls of roof or back	Falls of face or side	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Electricity	Machinery	Fires or suffocation from fires	Miscellaneous causes	Total, underground	Handling material	Haulage	Machinery	Miscellaneous causes	Total, surface	Total, underground mines
Alabama	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	1	-	-	1	2
Alaska	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arkansas	1	-	-	1	-	1	-	-	-	-	-	-	-	3	1	-	-	-	1	4
California	-	-	-	-	4	2	-	-	3	-	1	-	1	11	1	-	1	1	3	14
Colorado	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Connecticut	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Florida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Georgia	-	1	-	1	1	-	-	-	-	-	-	-	-	3	-	-	-	-	-	3
Hawaii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Illinois	-	-	-	4	2	-	-	-	-	-	2	-	-	8	-	1	-	-	1	9
Indiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iowa	-	-	-	2	-	-	-	-	-	-	-	1	1	4	1	1	-	-	2	6
Kansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	1	-	6	6
Kentucky	1	-	-	2	6	3	-	-	1	-	-	-	1	14	4	6	-	2	12	26
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maine	1	-	-	-	3	-	-	-	-	-	-	-	-	4	-	-	-	-	-	4
Maryland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Michigan	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Minnesota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mississippi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	-	1	1	1	-	-	-	-	-	3	1	-	7	1	-	-	-	1	8
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nebraska	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Jersey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Mexico	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New York	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Carolina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ohio	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Oklahoma	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	1
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pennsylvania	-	-	-	3	3	2	1	-	-	1	4	1	-	15	2	2	-	-	4	19
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Carolina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tennessee	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Texas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vermont	1	-	-	1	2	2	-	1	-	-	-	-	-	7	-	-	-	-	-	7
Virginia	2	-	-	-	-	-	-	1	1	-	-	-	-	4	-	-	-	-	-	4
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
West Virginia	-	-	-	-	1	-	-	-	-	-	-	-	-	1	1	4	2	-	7	8
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	6	1	1	17	25	10	1	2	5	2	10	3	3	86	13	18	4	3	38	124

1/ No nonfatal injuries were reported at stone quarries and mills for States not listed.

TABLE A-9. - Nonfatal injuries by general work location and main cause at stone quarries and mills in the United States, by State 1/, 1970 - Continued

State	Open quarries															Other surface mining										Total, mining activities
	Falls of face or side	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Explosions of gas or dust	Explosives	Electricity	Machinery	Fires or suffocation from fires	Miscellaneous causes	Total, open quarries	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Striking or bumping against objects	Haulage	Machinery	Miscellaneous causes	Total, other surface mining	
Alabama	-	-	3	3	1	2	-	1	-	-	-	3	-	1	14	-	-	1	1	-	-	-	-	2	18
Alaska	-	1	1	4	2	1	-	4	-	-	-	-	-	1	14	-	-	-	-	-	-	-	-	-	14
Arizona	-	-	-	-	1	-	-	2	-	-	-	2	-	1	6	-	-	-	-	-	-	-	-	-	6
Arkansas	-	-	4	13	1	1	-	5	-	1	1	2	-	1	29	-	-	-	-	-	-	-	-	-	33
California	-	-	18	14	3	2	-	7	-	3	1	5	-	2	55	-	-	1	-	-	-	-	-	1	70
Colorado	-	-	2	3	2	-	-	2	-	1	-	1	-	-	11	-	-	-	-	-	-	-	-	-	11
Connecticut	-	1	3	3	1	-	-	5	-	-	-	3	-	-	16	-	-	-	-	-	-	-	-	-	16
Florida	-	-	15	19	6	1	-	10	-	-	-	3	-	1	55	-	-	1	-	-	2	-	-	3	58
Georgia	-	-	14	20	4	1	-	12	-	-	-	9	-	4	64	-	-	-	-	-	-	-	-	-	67
Hawaii	-	1	6	13	2	1	-	4	-	-	-	5	-	-	32	-	-	-	-	-	-	-	-	-	32
Idaho	1	-	1	1	-	-	-	1	-	-	-	-	-	1	5	-	-	-	-	-	-	-	-	-	5
Illinois	1	-	16	10	-	-	-	6	-	1	-	19	1	1	55	-	-	-	-	-	-	-	-	-	64
Indiana	-	-	14	11	6	-	-	8	-	1	1	8	-	5	54	-	-	-	-	-	-	-	-	-	54
Iowa	-	-	11	11	3	-	-	15	-	-	-	5	-	1	46	-	-	-	-	-	-	-	-	-	52
Kansas	-	-	2	6	1	1	-	2	-	-	-	5	-	2	19	-	-	-	-	-	-	-	-	-	25
Kentucky	-	1	9	17	3	3	-	13	-	-	-	7	-	-	53	-	-	-	-	-	-	-	-	-	79
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	10	1	3	4	2	1	23	23
Maine	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	5
Maryland	1	2	13	15	4	2	1	6	-	-	1	6	-	3	54	-	-	-	-	-	-	-	-	-	54
Massachusetts	-	-	4	2	2	1	-	2	-	-	-	3	-	-	14	-	-	-	-	-	-	-	-	-	14
Michigan	-	2	3	5	3	-	-	6	-	-	1	2	1	-	23	-	-	-	-	-	-	-	-	-	24
Minnesota	-	-	5	7	2	-	1	2	1	-	-	2	-	2	22	-	-	-	-	-	-	-	-	-	22
Mississippi	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Missouri	1	3	8	25	4	-	1	7	-	2	-	9	1	1	62	-	-	-	-	-	-	-	-	-	70
Montana	-	-	2	2	-	1	-	4	-	-	-	3	-	-	12	-	-	-	-	-	-	-	-	-	12
Nebraska	-	-	2	2	2	-	-	5	-	-	-	1	-	-	12	-	-	-	-	-	-	-	-	-	13
Nevada	-	-	-	2	-	-	-	2	-	-	-	1	-	1	6	-	-	-	-	-	-	-	-	-	6
New Hampshire	-	1	1	-	1	-	-	-	-	-	-	-	-	2	5	-	-	-	-	-	-	-	-	-	5
New Jersey	-	3	8	21	5	1	-	7	-	-	-	2	-	6	53	-	-	-	-	-	-	-	-	-	53
New Mexico	-	-	2	2	-	-	-	1	-	-	1	1	-	-	7	-	-	-	-	-	-	-	-	-	7
New York	-	1	14	12	-	3	-	7	-	1	-	8	-	8	54	-	-	-	-	-	-	-	-	-	54
North Carolina	-	3	4	10	-	-	-	2	1	1	-	4	-	-	25	-	-	-	-	-	-	-	-	-	25
Ohio	-	5	17	27	3	2	2	22	-	-	-	12	-	9	99	-	-	-	-	-	-	-	-	-	100
Oklahoma	1	1	4	14	-	-	1	8	1	-	-	8	-	1	39	-	-	-	-	-	-	-	-	-	40
Oregon	-	-	5	20	1	-	-	8	-	1	1	4	-	1	41	-	-	-	-	-	-	-	-	-	41
Pennsylvania	1	1	19	35	10	3	1	20	-	-	-	13	-	10	113	-	-	-	-	-	-	-	-	-	132
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	1
South Carolina	-	-	2	2	-	1	-	3	-	-	-	1	-	2	11	-	-	-	-	-	-	-	-	-	11
South Dakota	-	1	9	9	-	1	1	2	-	1	-	1	-	1	26	-	-	-	-	-	-	-	-	-	26
Tennessee	-	-	12	15	5	-	-	16	-	-	-	13	-	2	63	-	-	-	-	-	-	-	-	-	63
Texas	-	2	24	20	6	2	-	13	-	-	2	14	-	4	87	1	6	7	3	3	4	4	3	31	118
Utah	-	-	1	2	3	-	-	1	-	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	7
Vermont	-	1	10	14	7	1	-	-	-	2	-	2	-	5	42	-	-	-	-	-	-	-	-	-	49
Virginia	-	1	9	17	8	1	-	11	-	1	1	16	1	-	66	-	-	-	-	-	-	-	-	-	70
Washington	1	3	2	7	3	1	-	3	-	-	-	3	-	-	23	-	-	-	-	-	-	-	-	-	23
West Virginia	-	-	7	3	-	-	-	7	-	-	-	4	-	3	24	-	-	-	-	-	-	-	-	-	32
Wisconsin	1	1	11	18	3	4	3	11	-	-	-	3	-	4	59	-	-	-	-	-	-	-	-	-	59
Wyoming	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Total	8	35	317	457	109	37	11	274	3	16	10	213	4	87	1,581	1	8	20	5	6	10	6	4	60	1,765

1/ No nonfatal injuries were reported at stone quarries and mills for States not listed.

TABLE A-9. - Nonfatal injuries by general work location and main cause at stone quarries and mills in the United States, by State 1/, 1970 - Continued

State	Mills														Grand total
	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Explosions of gas or dust	Electricity	Machinery	Fires or suffocation from fires	Miscellaneous causes	Pneumoconiosis	Total, mills	
Alabama	-	7	12	-	-	1	4	-	2	10	-	-	-	36	54
Alaska	-	-	-	-	-	-	-	1	-	2	-	-	-	3	17
Arizona	-	-	2	-	-	-	1	-	-	-	-	-	-	3	9
Arkansas	-	6	20	2	1	-	5	-	1	5	-	4	-	44	77
California	2	13	21	-	2	1	6	-	-	10	-	9	-	64	134
Colorado	-	3	3	-	-	-	1	-	-	-	-	1	-	8	19
Connecticut	-	3	7	-	-	2	-	-	-	1	-	1	-	14	30
Florida	1	15	23	2	1	-	9	-	1	8	-	3	-	63	121
Georgia	4	16	41	6	-	2	7	-	1	15	-	6	-	98	165
Hawaii	1	4	9	1	2	-	4	-	-	4	-	-	-	25	57
Idaho	1	1	1	-	-	-	-	-	1	-	-	-	-	4	9
Illinois	2	26	29	3	1	3	8	-	1	23	-	13	-	109	173
Indiana	1	18	16	5	-	-	6	-	-	11	-	2	-	59	113
Iowa	-	9	14	-	-	-	9	-	-	10	-	5	-	47	99
Kansas	1	3	7	3	1	1	-	-	1	8	-	1	-	26	51
Kentucky	-	9	11	1	-	1	1	-	-	5	-	4	-	32	111
Louisiana	-	6	6	4	-	1	1	-	-	3	-	5	-	26	49
Maine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
Maryland	-	10	10	4	2	-	5	-	-	5	1	6	-	43	97
Massachusetts	-	5	11	5	1	-	2	-	-	4	-	4	-	32	46
Michigan	3	6	7	1	1	-	3	-	-	8	-	3	1	33	57
Minnesota	-	10	26	1	-	4	3	-	-	6	-	1	-	51	73
Mississippi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Missouri	6	23	35	7	-	3	13	1	2	12	2	17	-	121	191
Montana	-	1	4	-	-	-	-	-	-	3	-	1	-	9	21
Nebraska	1	2	5	-	1	2	2	-	-	4	-	1	-	18	31
Nevada	1	3	5	1	-	2	-	-	-	2	-	1	-	15	21
New Hampshire	1	-	5	-	-	-	1	-	-	-	-	1	-	8	13
New Jersey	2	7	16	-	-	-	1	-	1	4	-	5	-	36	89
New Mexico	1	1	3	-	-	-	-	-	-	-	-	-	-	5	12
New York	6	14	22	5	1	3	-	-	4	12	-	3	-	70	124
North Carolina	-	12	24	2	1	1	2	-	-	1	-	1	-	44	69
Ohio	7	28	34	8	1	1	14	2	1	15	-	19	-	130	230
Oklahoma	1	6	15	2	-	1	3	-	-	2	1	5	-	36	76
Oregon	2	9	12	3	2	4	-	-	-	7	-	3	-	42	83
Pennsylvania	3	26	52	11	-	2	12	2	2	15	-	16	-	141	273
Rhode Island	-	-	1	-	-	-	-	-	-	-	-	-	-	1	2
South Carolina	-	2	5	2	-	-	1	-	-	1	-	1	-	12	23
South Dakota	-	2	3	-	-	-	-	-	-	-	-	-	-	5	31
Tennessee	1	7	30	1	3	1	6	-	1	15	1	6	-	72	135
Texas	1	23	39	9	3	1	12	-	1	17	5	18	-	129	247
Utah	-	2	1	-	-	-	1	-	-	-	-	-	-	4	11
Vermont	-	6	17	5	-	-	-	-	-	1	-	1	-	30	79
Virginia	3	14	23	10	1	-	9	-	-	10	-	8	-	78	148
Washington	-	3	2	2	-	-	-	-	-	5	-	1	-	13	36
West Virginia	-	3	4	6	-	-	1	-	-	4	-	2	-	20	52
Wisconsin	-	4	13	2	-	3	2	-	-	8	-	6	-	38	97
Wyoming	-	2	1	-	-	-	-	-	-	1	-	-	-	4	5
Total	52	370	647	114	25	40	155	6	20	277	10	184	1	1,901	3,666

1/ No nonfatal injuries were reported at stone quarries and mills for States not listed.

TABLE A-10. - Injuries by general work location and main cause at stone quarries and mills in the United States, by degree of injury and kind of stone, 1970

Degree of injury and kind of stone	Underground mines																			
	Underground														Surface					
	Falls of roof or back	Falls of face or side	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Electricity	Machinery	Fires or suffocation from fires	Miscellaneous causes	Total, underground	Handling material	Haulage	Machinery	Miscellaneous causes	Total, surface at underground	Total, underground mines
Fatal and nonfatal:																				
Cement 1/	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	1
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone	3	-	1	9	14	6	-	-	4	-	4	1	1	43	11	19	4	3	37	80
Limestone (chief product, lime)	2	-	-	4	3	2	-	1	1	1	5	2	2	23	-	-	-	-	-	23
Marble	1	1	-	3	4	2	-	1	-	-	-	-	-	12	-	-	-	-	-	12
Sandstone	-	-	-	1	1	-	1	-	-	1	-	-	-	4	2	1	-	-	3	7
Slate	1	-	-	-	3	-	-	-	-	-	-	-	-	4	-	-	-	-	-	4
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	7	1	1	17	25	10	1	2	5	2	10	3	3	87	13	20	4	3	40	127
Fatal:																				
Cement 1/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-	-	2	3
Limestone (chief product, lime)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-	-	2	3
Permanent total:																				
Cement 1/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone (chief product, lime)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Permanent partial:																				
Cement 1/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone (chief product, lime)	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Marble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Temporary total:																				
Cement 1/	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	1
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone	2	-	1	9	14	6	-	-	4	-	4	1	1	42	11	17	4	3	35	77
Limestone (chief product, lime)	2	-	-	4	3	1	-	1	1	1	5	2	2	22	-	-	-	-	-	22
Marble	1	1	-	3	4	2	-	1	-	-	-	-	-	12	-	-	-	-	-	12
Sandstone	-	-	-	1	1	-	1	-	-	1	-	-	-	4	2	1	-	-	3	7
Slate	1	-	-	-	3	-	-	-	-	-	-	-	-	4	-	-	-	-	-	4
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	6	1	1	17	25	9	1	2	5	2	10	3	3	85	13	18	4	3	38	123

1/ Includes limestone or other stones used in manufacturing cement.

TABLE A-10. - Injuries by general work location and main cause at stone quarries and mills in the United States, by degree of injury and kind of stone, 1970 - Continued

Degree of injury and kind of stone	Open quarries.															Other surface mining									Total, mining activities
	Falls of face or side	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Explosions of gas or dust	Explosives	Electricity	Machinery	Fires or suffocation from fires	Miscellaneous causes	Pneumoconiosis	Total, open quarries	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Haulage	Machinery	Miscellaneous causes	Total, other surface mining	
Fatal and nonfatal:																										
Cement 1/	-	1	12	15	5	1	-	13	-	-	3	5	-	2	-	57	-	-	1	-	-	-	-	-	1	59
Granite	2	5	49	68	18	6	3	25	2	4	2	23	1	21	1	230	-	-	-	-	-	-	-	-	-	230
Limestone	4	18	174	210	49	22	6	170	-	8	6	121	3	37	-	828	1	9	19	5	6	11	6	4	61	969
Limestone (chief product, lime)	-	2	11	26	3	-	1	19	-	-	-	8	-	11	-	81	-	-	-	-	-	-	-	-	-	104
Marble	-	3	6	5	2	-	-	-	-	-	-	6	-	-	-	22	-	-	-	-	-	-	-	-	-	34
Sandstone	1	1	22	41	15	1	1	16	-	2	1	24	-	5	-	130	-	-	-	-	-	-	-	-	-	137
Slate	-	1	5	10	-	-	-	2	-	1	-	2	-	1	-	22	-	-	-	-	-	-	-	-	-	26
Traprock	3	5	30	65	11	6	-	26	1	2	1	24	-	9	-	183	-	-	-	-	-	-	-	-	-	183
Miscellaneous stone	-	-	8	18	6	1	-	12	-	1	-	5	-	1	-	52	-	-	-	-	-	-	-	-	-	52
Total	10	36	317	458	109	37	11	283	3	18	13	218	4	87	1	1,605	1	9	20	5	6	11	6	4	62	1,794
Fatal:																										
Cement 1/	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Granite	-	-	-	-	-	-	-	1	-	1	-	-	-	-	1	3	-	-	-	-	-	-	-	-	-	3
Limestone	-	1	-	-	-	-	-	3	-	1	2	4	-	-	-	11	-	1	-	-	-	1	-	-	2	16
Limestone (chief product, lime)	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Marble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sandstone	1	-	-	-	-	-	-	2	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	3
Slate	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Traprock	1	-	-	-	-	-	-	1	-	-	-	1	-	-	-	3	-	-	-	-	-	-	-	-	-	3
Miscellaneous stone	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Total	2	1	-	1	-	-	-	9	-	2	3	5	-	-	1	24	-	1	-	-	-	1	-	-	2	29
Permanent total:																										
Cement 1/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone (chief product, lime)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Permanent partial:																										
Cement 1/	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Granite	-	-	1	2	-	-	-	1	-	-	-	3	-	-	-	7	-	-	-	-	-	-	-	-	-	7
Limestone	-	-	1	10	-	-	-	4	-	-	-	7	-	-	-	22	-	-	-	-	-	1	-	-	1	23
Limestone (chief product, lime)	-	-	-	1	-	-	-	1	-	-	-	1	-	-	-	3	-	-	-	-	-	-	-	-	-	4
Marble	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Sandstone	-	-	1	1	-	-	-	-	-	-	-	1	-	-	-	3	-	-	-	-	-	-	-	-	-	3
Slate	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	2	-	-	-	-	-	-	-	-	-	2
Traprock	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	4	16	-	-	-	7	-	-	-	13	-	-	-	40	-	-	-	-	-	1	-	-	1	42
Temporary total:																										
Cement 1/	-	1	12	14	5	1	-	13	-	-	2	5	-	2	-	55	-	-	1	-	-	-	-	-	1	57
Granite	2	5	48	66	18	6	3	23	2	3	2	20	1	21	-	220	-	-	-	-	-	-	-	-	-	220
Limestone	4	17	173	200	49	22	6	163	-	7	4	110	3	37	-	795	1	8	19	5	6	9	6	4	58	930
Limestone (chief product, lime)	-	2	11	25	3	-	1	17	-	-	-	7	-	11	-	77	-	-	-	-	-	-	-	-	-	99
Marble	-	3	6	4	2	-	-	-	-	-	-	6	-	-	-	21	-	-	-	-	-	-	-	-	-	33
Sandstone	-	1	21	40	15	1	1	14	-	2	1	23	-	5	-	124	-	-	-	-	-	-	-	-	-	131
Slate	-	1	5	10	-	-	-	-	-	1	-	1	-	1	-	19	-	-	-	-	-	-	-	-	-	23
Traprock	2	5	29	65	11	6	-	25	1	2	1	23	-	9	-	179	-	-	-	-	-	-	-	-	-	179
Miscellaneous stone	-	-	8	17	6	1	-	12	-	1	-	5	-	1	-	51	-	-	-	-	-	-	-	-	-	51
Total	8	35	313	441	109	37	11	267	3	16	10	200	4	87	-	1,541	1	8	20	5	6	9	6	4	59	1,723

1/ Includes limestone or other stones used in manufacturing cement.

TABLE A-10. - Injuries by general work location and main cause at stone quarries and mills in the United States, by degree of injury and kind of stone, 1970 - Continued

Degree of injury and kind of stone	Mills														Grand total
	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Explosions of gas or dust	Electricity	Machinery	Fires or suffocation from fires	Miscellaneous causes	Pneumoconiosis	Total, mills	
Fatal and nonfatal:															
Cement 1/	11	79	86	12	6	8	21	-	6	44	3	32	-	308	367
Granite	5	35	97	10	1	8	12	1	1	21	-	13	-	204	434
Limestone	18	136	234	50	12	10	63	1	8	127	4	42	-	705	1,674
Limestone (chief product, lime)	4	50	55	12	2	3	32	4	2	31	1	72	1	269	373
Marble	4	13	62	2	-	2	3	-	1	12	2	5	-	106	140
Sandstone	5	32	54	15	1	5	18	-	2	22	-	9	-	163	300
Slate	-	1	16	1	-	-	2	-	-	2	-	2	-	24	50
Traprock	2	23	29	11	1	4	4	-	1	18	-	6	-	99	282
Miscellaneous stone	3	4	16	1	2	-	3	-	-	5	-	3	-	37	89
Total	52	373	649	114	25	40	158	6	21	282	10	184	1	1,915	3,709
Fatal:															
Cement 1/	-	2	1	-	-	-	-	-	-	-	-	-	-	3	4
Granite	-	-	-	-	-	-	1	-	-	1	-	-	-	2	5
Limestone	-	1	1	-	-	-	2	-	1	3	-	-	-	8	24
Limestone (chief product, lime)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Marble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sandstone	-	-	-	-	-	-	-	-	-	1	-	-	-	1	4
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Total	-	3	2	-	-	-	3	-	1	5	-	-	-	14	43
Permanent total:															
Cement 1/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1
Limestone (chief product, lime)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1
Permanent partial:															
Cement 1/	-	1	6	2	-	-	-	-	-	8	-	1	-	18	19
Granite	-	-	3	-	-	-	-	-	-	2	-	-	-	5	12
Limestone	-	-	9	3	-	-	3	-	-	10	-	1	-	26	49
Limestone (chief product, lime)	-	-	2	-	-	-	-	-	-	5	-	-	-	7	11
Marble	-	-	4	-	-	-	-	-	-	1	-	-	-	5	6
Sandstone	1	-	2	-	-	-	1	-	-	3	-	-	-	7	10
Slate	-	-	1	-	-	-	1	-	-	-	-	-	-	2	4
Traprock	-	-	1	-	-	-	-	-	-	-	-	-	-	1	2
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1	1	28	5	-	-	5	-	-	29	-	2	-	71	113
Temporary total:															
Cement 1/	11	76	79	10	6	8	21	-	6	36	3	31	-	287	344
Granite	5	35	94	10	1	8	11	1	1	18	-	13	-	197	417
Limestone	18	135	224	47	12	10	58	1	6	114	4	41	-	670	1,600
Limestone (chief product, lime)	4	50	53	12	2	3	32	4	2	26	1	72	1	262	361
Marble	4	13	58	2	-	2	3	-	1	11	2	5	-	101	134
Sandstone	4	32	52	15	1	5	17	-	2	18	-	9	-	155	286
Slate	-	1	15	1	-	-	1	-	-	2	-	2	-	22	45
Traprock	2	23	28	11	1	4	4	-	1	18	-	6	-	98	277
Miscellaneous stone	3	4	16	1	2	-	3	-	-	5	-	3	-	37	88
Total	51	369	619	109	25	40	150	6	19	248	10	182	1	1,829	3,552

1/ Includes limestone or other stones used in manufacturing cement.

TABLE A-11. - Injuries by general work location and main cause at stone quarries and mills in the United States, by dimension stone, crushed and broken stone, degree of injury, and kind of stone 1/, 1970

Degree of injury and kind of stone	Underground mines																			
	Underground														Surface					
	Falls of roof or back	Falls of face or side	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Electricity	Machinery	Fires or suffocation from fires	Miscellaneous causes	Total, underground	Handling material	Haulage	Machinery	Miscellaneous causes	Total, surface at underground	Total, underground mines
Dimension stone:																				
Fatal:																				
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Permanent partial:																				
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Temporary total:																				
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	1	-	-	1	2
Marble	1	-	-	2	3	2	-	1	-	-	-	-	-	9	-	-	-	-	-	9
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Slate	1	-	-	-	3	-	-	-	-	-	-	-	-	4	-	-	-	-	-	4
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	2	-	-	2	7	2	-	1	-	-	-	-	-	14	-	1	-	-	1	15
Grushed and broken stone 2/:																				
Fatal:																				
Cement 3/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-	-	2	3
Limestone (chief product, lime)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-	-	2	3
Permanent total:																				
Limestone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Permanent partial:																				
Gement 3/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone (chief product, lime)	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Marble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Temporary total:																				
Cement 3/	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	1
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone	2	-	1	9	13	6	-	-	4	-	4	1	1	41	11	16	4	3	34	75
Limestone (chief product, lime)	2	-	-	4	3	1	-	1	1	1	5	2	2	22	-	-	-	-	-	22
Marble	-	1	-	1	1	-	-	-	-	-	-	-	-	3	-	-	-	-	-	3
Sandstone	-	-	-	1	1	-	1	-	-	1	-	-	-	4	2	1	-	-	3	7
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	4	1	1	15	18	7	1	1	5	2	10	3	3	71	13	17	4	3	37	108
Grand total:																				
Fatal	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-	-	2	3
Permanent total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Permanent partial	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Temporary total	6	1	1	17	25	9	1	2	5	2	10	3	3	85	13	18	4	3	38	123
Total nonfatal	6	1	1	17	25	10	1	2	5	2	10	3	3	86	13	18	4	3	38	124

1/ No injuries occurred in stones not listed.
2/ Same as nondimension stone.
3/ Includes limestone or other stones used in manufacturing cement.

TABLE A-11. - Injuries by general work location and main cause at stone quarries and mills in the United States, by dimension stone, crushed and broken stone, degree of injury, and kind of stone 1/, 1970 - Continued

Degree of injury and kind of stone	Open quarries																Other surface mining									Total, mining activities
	Falls of face or side	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Explosions of gas or dust	Explosives	Electricity	Machinery	Fires or suffocation from fires	Miscellaneous causes	Pneumoconiosis	Total, open quarries	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Striking or bumping against objects	Haulage	Machinery	Miscellaneous causes	Total, other surface mining	
Dimension stone:																										
Fatal:																										
Granite	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Slate	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Total	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	2
Permanent partial:																										
Granite	-	-	-	2	-	-	-	1	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	3
Limestone	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	2
Marble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Slate	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	2	-	-	-	-	-	-	-	-	-	2
Total	-	-	-	4	-	-	-	2	-	-	-	1	-	-	-	7	-	-	-	-	-	-	-	-	-	7
Temporary total:																										
Granite	2	3	28	36	11	3	3	5	2	3	1	9	-	11	-	117	-	-	-	-	-	-	-	-	-	117
Limestone	-	-	15	10	5	-	-	4	-	-	1	7	-	3	-	45	-	-	-	-	-	-	-	-	-	47
Marble	-	3	4	4	1	-	-	-	-	-	-	4	-	-	-	16	-	-	-	-	-	-	-	-	-	25
Sandstone	-	-	6	10	4	1	-	3	-	-	-	9	-	-	-	33	-	-	-	-	-	-	-	-	-	33
Slate	-	1	5	10	-	-	-	-	-	1	-	1	-	1	-	19	-	-	-	-	-	-	-	-	-	23
Traprock	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Miscellaneous stone	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	5
Total	2	7	58	76	21	4	3	12	2	4	2	30	-	15	-	236	-	-	-	-	-	-	-	-	-	251
Crushed and broken stone 2/:																										
Fatal:																										
Cement 3/	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Granite	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-	-	2
Limestone	-	1	-	-	-	-	-	3	-	1	2	4	-	-	-	11	-	1	-	-	-	1	-	-	2	16
Limestone (chief product, lime)	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Marble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sandstone	1	-	-	-	-	-	-	2	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	3
Traprock	1	-	-	-	-	-	-	1	-	-	-	1	-	-	-	3	-	-	-	-	-	-	-	-	-	3
Miscellaneous stone	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Total	2	1	-	1	-	-	-	8	-	1	3	5	-	-	1	22	-	1	-	-	-	1	-	-	2	27
Permanent total:																										
Limestone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Permanent partial:																										
Cement 3/	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Granite	-	-	1	-	-	-	-	-	-	-	-	3	-	-	-	4	-	-	-	-	-	-	-	-	-	4
Limestone	-	-	1	8	-	-	-	4	-	-	-	7	-	-	-	20	-	-	-	-	-	1	-	-	1	21
Limestone (chief product, lime)	-	-	-	1	-	-	-	1	-	-	-	1	-	-	-	3	-	-	-	-	-	-	-	-	-	4
Marble	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Sandstone	-	-	1	1	-	-	-	-	-	-	-	1	-	-	-	3	-	-	-	-	-	-	-	-	-	3
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Traprock	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Total	-	-	4	12	-	-	-	5	-	-	-	12	-	-	-	33	-	-	-	-	-	1	-	-	1	35
Temporary total:																										
Cement 3/	-	1	12	14	5	1	-	13	-	-	2	5	-	2	-	55	-	-	1	-	-	-	-	-	1	57
Granite	-	2	20	30	7	3	-	18	-	-	1	11	1	10	-	103	-	-	-	-	-	-	-	-	-	103
Limestone	4	17	158	190	44	22	6	159	-	7	3	103	3	34	-	750	1	8	19	5	6	9	6	4	58	883
Limestone (chief product, lime)	-	2	11	25	3	-	1	17	-	-	-	7	-	11	-	77	-	-	-	-	-	-	-	-	-	99
Marble	-	-	2	-	1	-	-	-	-	-	-	2	-	-	-	5	-	-	-	-	-	-	-	-	-	8
Sandstone	-	1	15	30	11	-	1	11	-	2	1	14	-	5	-	91	-	-	-	-	-	-	-	-	-	98
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Traprock	2	5	29	64	11	6	-	25	1	2	1	23	-	9	-	178	-	-	-	-	-	-	-	-	-	178
Miscellaneous stone	-	-	8	12	6	1	-	12	-	1	-	5	-	1	-	46	-	-	-	-	-	-	-	-	-	46
Total	6	28	255	365	88	33	8	255	1	12	8	170	4	72	-	1,305	1	8	20	5	6	9	6	4	59	1,472
Grand total:																										
Fatal	2	1	-	1	-	-	-	9	-	2	3	5	-	-	1	24	-	1	-	-	-	1	-	-	2	29
Permanent total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Permanent partial	-	-	4	16	-	-	-	7	-	-	-	13	-	-	-	40	-	-	-	-	-	1	-	-	1	42
Temporary total	8	35	313	441	109	37	11	267	3	16	10	200	4	87	-	1,541	1	8	20	5	6	9	6	4	59	1,723
Total nonfatal	8	35	317	457	109	37	11	274	3	16	10	213	4	87	-	1,581	1	8	20	5	6	10	6	4	60	1,765

1/ No injuries occurred in stones not listed.
2/ Same as nondimension stone.
3/ Includes limestone or other stones used in manufacturing cement.

TABLE A-11. - Injuries by general work location and main cause at stone quarries and mills in the United States, by dimension stone, crushed and broken stone, degree of injury, and kind of stone 1/, 1970 - Continued

Degree of injury and kind of stone	Mills														Grand total
	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Explosions of gas or dust	Electricity	Machinery	Fires or suffocation from fires	Miscellaneous causes	Pneumoconiosis	Total, mills	
Dimension stone:															
Fatal:															
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Sandstone	-	-	-	-	-	-	-	-	-	1	-	-	-	1	1
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Total	-	-	-	-	-	-	-	-	-	1	-	-	-	1	3
Permanent partial:															
Granite	-	-	2	-	-	-	-	-	-	1	-	-	-	3	6
Limestone	-	-	3	-	-	-	-	-	-	2	-	-	-	5	7
Marble	-	-	4	-	-	-	-	-	-	-	-	-	-	4	4
Sandstone	-	-	1	-	-	-	-	-	-	1	-	-	-	2	2
Slate	-	-	1	-	-	-	-	-	-	-	-	-	-	1	3
Total	-	-	11	-	-	-	-	-	-	4	-	-	-	15	22
Temporary total:															
Granite	4	21	58	7	1	7	3	-	-	7	-	6	-	114	231
Limestone	-	8	20	2	-	1	2	-	-	10	-	-	-	43	90
Marble	3	9	38	1	-	2	-	-	-	1	-	2	-	56	81
Sandstone	2	6	10	6	-	-	-	-	1	2	-	-	-	27	60
Slate	-	1	13	1	-	-	1	-	-	2	-	1	-	19	42
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Miscellaneous stone	-	-	3	-	-	-	-	-	-	1	-	-	-	4	9
Total	9	45	142	17	1	10	6	-	1	23	-	9	-	263	514
Crushed and broken stone 2/:															
Fatal:															
Cement 3/	-	2	1	-	-	-	-	-	-	-	-	-	-	3	4
Granite	-	-	-	-	-	-	1	-	-	1	-	-	-	2	4
Limestone	-	1	1	-	-	-	2	-	1	3	-	-	-	8	24
Limestone (chief product, lime)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Marble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Total	-	3	2	-	-	-	3	-	1	4	-	-	-	13	40
Permanent total:															
Limestone	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1
Total	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1
Permanent partial:															
Cement 3/	-	1	6	2	-	-	-	-	-	8	-	1	-	18	19
Granite	-	-	1	-	-	-	-	-	-	1	-	-	-	2	6
Limestone	-	-	6	3	-	-	3	-	-	8	-	1	-	21	42
Limestone (chief product, lime)	-	-	2	-	-	-	-	-	-	5	-	-	-	7	11
Marble	-	-	-	-	-	-	-	-	-	1	-	-	-	1	2
Sandstone	1	-	1	-	-	-	1	-	-	2	-	-	-	5	8
Slate	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1
Traprock	-	-	1	-	-	-	-	-	-	-	-	-	-	1	2
Total	1	1	17	5	-	-	5	-	-	25	-	2	-	56	91
Temporary total:															
Cement 3/	11	76	79	10	6	8	21	-	6	36	3	31	-	287	344
Granite	1	14	36	3	-	1	8	1	1	11	-	7	-	83	186
Limestone	18	127	204	45	12	9	56	1	6	104	4	41	-	627	1,510
Limestone (chief product, lime)	4	50	53	12	2	3	32	4	2	26	1	72	1	262	361
Marble	1	4	20	1	-	-	3	-	1	10	2	3	-	45	53
Sandstone	2	26	42	9	1	5	17	-	1	16	-	9	-	128	226
Slate	-	-	2	-	-	-	-	-	-	-	-	1	-	3	3
Traprock	2	23	28	11	1	4	4	-	1	18	-	6	-	98	276
Miscellaneous stone	3	4	13	1	2	-	3	-	-	4	-	3	-	33	79
Total	42	324	477	92	24	30	144	6	18	225	10	173	1	1,566	3,038
Grand total:															
Fatal	-	3	2	-	-	-	3	-	1	5	-	-	-	14	43
Permanent total	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1
Permanent partial	1	1	28	5	-	-	5	-	-	29	-	2	-	71	113
Temporary total	51	369	619	109	25	40	150	6	19	248	10	182	1	1,829	3,552
Total nonfatal	52	370	647	114	25	40	155	6	20	277	10	184	1	1,901	3,666

1/ No injuries occurred in stones not listed.
2/ Same as nondimension stone.
3/ Includes limestone or other stones used in manufacturing cement.

TABLE A-12. - Injury experience and worktime data at stone quarries and mills in the United States, by dimension stone, crushed and broken stone, and kind of stone, 1970

Kind of stone	Injuries						Frequency rates per million man-hours						Severity rates per million man-hours					
	Fatal			Nonfatal			Fatal			Nonfatal			Fatal			Nonfatal		
	Quarries	Mills	Total	Quarries	Mills	Total	Quarries	Mills	Total	Quarries	Mills	Total	Quarries	Mills	Total	Quarries	Mills	Total
Dimension stone:																		
Cement 1/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granite	1	-	1	120	117	237	0.44	-	0.16	52.78	29.50	37.98	2,639	-	962	2,063	576	1,118
Limestone	-	-	-	49	48	97	-	-	-	38.82	32.44	35.38	-	-	-	1,616	1,729	1,677
Limestone (chief product, lime)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marble	-	-	-	25	60	85	-	-	-	29.45	29.81	29.70	-	-	-	626	1,079	944
Sandstone	-	1	1	33	29	62	-	1.04	.60	47.17	30.12	37.29	-	6,231	3,609	923	569	718
Slate	1	-	1	25	20	45	1.42	-	.57	35.50	19.32	25.87	8,520	-	3,450	1,465	303	774
Traprock	-	-	-	1	-	1	-	-	-	42.79	-	10.41	-	-	-	428	-	104
Miscellaneous stone	-	-	-	5	4	9	-	-	-	29.08	13.56	19.27	-	-	-	302	312	308
Total or average	2	1	3	258	278	536	.33	.10	.19	43.12	28.30	33.91	2,005	611	1,139	1,504	811	1,074
Crushed and broken stone 2/:																		
Cement 1/	1	3	4	58	305	363	.16	.06	.07	9.45	6.33	6.68	978	373	442	517	464	470
Granite	2	2	4	107	85	192	.34	.49	.40	18.04	20.84	19.18	2,023	2,942	2,398	1,787	676	1,334
Limestone	16	8	24	904	649	1,553	.41	.31	.37	23.44	25.49	24.26	2,490	1,885	2,249	1,024	1,277	1,125
Limestone (chief product, lime)	1	-	1	103	269	372	.23	-	.05	23.93	19.24	20.34	1,394	-	328	620	600	605
Marble	-	-	-	9	46	55	-	-	-	15.60	35.36	29.29	-	-	-	5,479	756	2,207
Sandstone	3	-	3	101	133	234	.84	-	.42	28.44	36.21	32.39	5,069	-	2,492	1,027	1,166	1,098
Slate	-	-	-	-	4	4	-	-	-	-	9.11	7.82	-	-	-	-	10,431	8,949
Traprock	3	-	3	179	99	278	.51	-	.33	30.38	30.22	30.32	3,055	-	1,963	685	708	693
Miscellaneous stone	1	-	1	46	33	79	.56	-	.34	25.60	28.13	26.60	3,339	-	2,020	867	609	765
Total or average	27	13	40	1,507	1,623	3,130	.40	.13	.24	22.55	15.97	18.58	2,424	768	1,425	1,022	777	874
Grand total or average	29	14	43	1,765	1,901	3,666	.40	.13	.23	24.24	17.06	19.90	2,390	754	1,400	1,062	780	891

1/ Includes limestone or other stones used in manufacturing cement.
2/ Same as nondimension stone.

TABLE A-12. - Injury experience and worktime data at stone quarries and mills in the United States, by dimension stone, crushed and broken stone, and kind of stone, 1970 - Continued

Kind of stone	Active operations			Average men working daily			Average days active			Man-days worked			Man-hours worked		
	Quarries	Mills	Total	Quarries	Mills	Total	Quarries	Mills	Total	Quarries	Mills	Total	Quarries	Mills	Total
Dimension stone:															
Cement 1/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granite	145	76	221	1,177	1,869	3,046	236	247	242	277,220	461,336	738,556	2,273,434	3,966,405	6,239,839
Limestone	105	65	170	734	791	1,525	214	234	224	156,747	184,959	341,706	1,262,280	1,479,653	2,741,933
Limestone (chief product, lime)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marble	30	14	44	449	1,018	1,467	232	249	244	103,945	253,596	357,541	848,832	2,012,758	2,861,590
Sandstone	185	67	252	460	521	981	190	231	212	87,219	120,452	207,671	699,551	962,931	1,662,482
Slate	50	41	91	369	503	872	238	256	248	87,690	128,759	216,449	704,198	1,035,141	1,739,339
Traprock	10	2	12	17	35	52	173	259	231	2,936	9,081	12,017	23,371	72,646	96,017
Miscellaneous stone	30	8	38	96	162	258	222	227	225	21,331	36,811	58,142	171,911	295,036	466,947
Total or average	555	273	828	3,302	4,899	8,201	223	244	236	737,088	1,194,994	1,932,082	5,983,577	9,824,570	15,808,147
Crushed and broken stone 2/:															
Cement 1/	206	192	398	2,920	18,220	21,140	261	330	320	760,697	6,010,990	6,771,687	6,136,653	48,210,791	54,347,444
Granite	291	179	470	2,747	1,805	4,552	244	257	249	671,570	463,121	1,134,691	5,930,447	4,079,324	10,009,771
Limestone	2,566	1,788	4,354	18,069	11,651	29,720	245	253	248	4,431,040	2,942,476	7,373,516	38,558,992	25,460,959	64,019,951
Limestone (chief product, lime)	103	156	259	1,915	5,480	7,395	271	317	305	519,389	1,736,448	2,255,837	4,304,327	13,984,358	18,288,685
Marble	69	36	105	272	556	828	251	262	258	68,237	145,590	213,827	576,902	1,301,080	1,877,982
Sandstone	363	228	591	1,821	1,686	3,507	232	265	248	421,858	446,660	868,518	3,550,921	3,672,975	7,223,896
Slate	9	7	16	36	188	224	239	289	281	8,621	54,340	62,961	72,694	438,877	511,571
Traprock	676	392	1,068	3,164	1,666	4,830	225	237	229	710,867	395,075	1,105,942	5,891,606	3,275,905	9,167,511
Miscellaneous stone	277	122	399	1,038	575	1,613	210	253	225	218,006	145,283	363,289	1,796,837	1,173,322	2,970,159
Total or average	4.560	3,100	7,660	31,982	41,827	73,809	244	295	273	7,810,285	12,339,983	20,150,268	66,819,379	101,597,591	168,416,970
Grand total or average	5,115	3,373	8,488	35,284	46,726	82,010	242	290	269	8,547,373	13,534,977	22,082,350	72,802,956	111,422,161	184,225,117

1/ Includes limestone or other stones used in manufacturing cement.
2/ Same as nondimension stone.

TABLE A-13. - Injury experience and worktime data on dimension stone and crushed and broken stone quarries and mills in the United States, by State, 1970

State	Dimension stone								Crushed and broken stone							
	Injuries		Frequency rates per million man-hours		Severity rates per million man-hours		Average men working daily	Man-hours worked	Injuries		Frequency rates per million man-hours		Severity rates per million man-hours		Average men working daily	Man-hours worked
	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal			Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal		
Alabama	-	6	-	39.17	-	2,762	78	153,177	1	48	0.18	8.86	1,108	253	2,353	5,416,156
Alaska	-	-	-	-	-	-	-	-	1	17	1.40	23.77	8,391	737	391	715,088
Arizona	-	1	-	31.65	-	1,456	34	31,599	-	8	-	7.57	-	71	453	1,056,713
Arkansas	-	2	-	25.86	-	1,940	36	77,331	-	75	-	23.95	-	1,984	1,302	3,131,152
California	-	7	-	27.43	-	635	138	255,181	3	127	.29	12.14	1,721	611	4,243	10,459,373
Colorado	-	-	-	-	-	-	66	94,684	-	19	-	14.73	-	231	617	1,290,076
Connecticut	-	-	-	-	-	-	13	22,042	-	30	-	37.99	-	1,143	395	789,681
Florida	-	-	-	-	-	-	7	15,600	3	121	.48	19.36	2,880	589	2,455	6,250,126
Georgia	1	62	0.59	36.57	3,539	1,424	940	1,695,233	-	103	-	21.68	-	934	1,908	4,750,783
Hawaii	-	-	-	-	-	-	3	4,289	-	57	-	44.91	-	1,558	539	1,269,200
Idaho	-	-	-	-	-	-	1	1,808	-	9	-	18.49	-	477	328	486,835
Illinois	-	-	-	-	-	-	-	-	3	173	.38	21.63	2,250	804	3,523	7,999,052
Indiana	-	57	-	33.13	-	1,997	964	1,720,593	1	56	.19	10.60	1,136	346	2,132	5,281,966
Iowa	-	4	-	85.09	-	1,319	25	47,011	1	95	.17	16.40	1,036	563	2,441	5,792,523
Kansas	-	3	-	32.52	-	1,929	54	92,260	-	48	-	14.33	-	374	1,476	3,349,475
Kentucky	-	-	-	-	-	-	-	-	1	111	.24	26.21	1,417	1,112	2,079	4,234,478
Louisiana	-	-	-	-	-	-	-	-	-	49	-	29.47	-	1,132	565	1,662,805
Maine	-	5	-	83.54	-	618	29	59,848	-	-	-	-	-	-	166	434,827
Maryland	-	5	-	49.11	-	246	52	101,804	-	92	-	28.27	-	664	1,405	3,254,343
Massachusetts	1	16	4.00	63.95	23,980	1,279	144	250,210	-	30	-	26.00	-	529	574	1,153,960
Michigan	-	-	-	-	-	-	15	18,209	-	57	-	8.02	-	251	2,961	7,103,312
Minnesota	-	48	-	28.78	-	704	747	1,667,631	-	25	-	24.39	-	1,615	545	1,024,930
Mississippi	-	-	-	-	-	-	-	-	-	1	-	4.67	-	135	125	214,223
Missouri	-	29	-	42.99	-	1,170	343	674,634	1	162	.12	18.75	694	1,400	3,838	8,642,270
Montana	-	2	-	112.61	-	113	9	17,760	-	19	-	20.55	-	642	450	924,625
Nebraska	-	-	-	-	-	-	1	400	-	31	-	21.01	-	338	599	1,475,154
Nevada	-	-	-	-	-	-	-	-	-	21	-	30.85	-	835	294	680,645
New Hampshire	-	12	-	41.52	-	374	145	289,036	-	1	-	24.59	-	885	27	40,669
New Jersey	-	-	-	-	-	-	5	9,783	-	89	-	45.18	-	747	941	1,969,866
New Mexico	-	-	-	-	-	-	4	2,323	-	12	-	25.57	-	648	243	469,283
New York	-	5	-	17.86	-	550	165	279,894	3	119	.46	18.18	2,750	1,017	2,894	6,544,983
North Carolina	-	36	-	37.43	-	1,347	481	961,831	1	33	.29	9.54	1,735	232	1,592	3,458,892
North Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	7,462
Ohio	-	28	-	34.05	-	552	429	822,278	-	202	-	18.02	-	563	4,953	11,210,018
Oklahoma	-	15	-	63.20	-	1,904	126	237,335	-	61	-	23.36	-	561	1,165	2,611,640
Oregon	-	-	-	-	-	-	7	9,786	1	83	.41	33.67	2,434	2,570	1,418	2,465,290
Pennsylvania	1	21	.92	19.41	5,546	709	562	1,081,923	4	252	.24	14.84	1,413	1,082	7,339	16,983,915
Rhode Island	-	-	-	-	-	-	2	3,680	-	2	-	23.04	-	207	41	86,800
South Carolina	-	2	-	23.37	-	526	44	85,580	2	21	1.03	10.79	6,165	374	780	1,946,396
South Dakota	-	24	-	49.15	-	854	214	488,302	1	7	1.72	12.01	10,292	271	310	582,963
Tennessee	-	17	-	36.70	-	1,244	255	463,163	4	118	.74	21.77	4,427	2,176	2,426	5,421,438
Texas	-	19	-	41.34	-	372	218	459,654	2	228	.19	21.48	1,131	1,146	4,048	10,614,498
Utah	-	-	-	-	-	-	13	11,599	-	11	-	13.77	-	598	375	798,735
Vermont	-	70	-	30.96	-	955	1,085	2,260,818	-	9	-	21.40	-	1,517	206	420,628
Virginia	-	16	-	22.28	-	356	383	718,183	3	132	.43	19.03	2,595	1,228	3,155	6,937,618
Washington	-	1	-	41.61	-	874	22	24,032	-	35	-	21.86	-	1,168	969	1,601,222
West Virginia	-	-	-	-	-	-	3	3,130	1	52	.41	21.21	2,447	778	1,179	2,451,770
Wisconsin	-	23	-	38.71	-	1,474	337	594,186	2	74	.79	29.14	4,726	633	1,374	2,539,288
Wyoming	-	-	-	-	-	-	2	327	1	5	2.44	12.20	14,640	300	213	409,825
Total or average	3	536	.19	33.91	1,139	1,074	8,201	15,808,147	40	3,130	.24	18.58	1,425	874	73,809	168,416,970

TABLE A-14. - Injury experience and worktime data on stone quarries and mills in the United States, by dimension stone, crushed and broken stone, and employment size group, 1970

Stone and size group	Injuries			Frequency rates per million man-hours			Severity rates per million man-hours			Active operations	Average men working daily	Average days active	Man-days worked	Man-hours worked
	Fatal	Nonfatal	Total	Fatal	Nonfatal	Total	Fatal	Nonfatal	Total					
Dimension stone:														
1-4	-	48	48	-	35.93	35.93	-	1,231	1,231	505	879	190	166,648	1,335,925
5-9	1	57	58	0.62	35.36	35.98	3,722	655	4,377	137	888	225	199,578	1,612,117
10-19	1	109	110	.39	42.91	43.30	2,362	1,572	3,934	94	1,286	239	307,138	2,540,489
20-34	1	89	90	.43	37.98	38.40	2,560	1,193	3,753	45	1,193	241	287,562	2,343,459
35-49	-	42	42	-	28.67	28.67	-	1,548	1,548	18	777	234	181,660	1,464,834
50-99	-	77	77	-	27.99	27.99	-	877	877	19	1,361	250	340,076	2,750,594
100-149	-	40	40	-	41.56	41.56	-	621	621	4	478	228	108,957	962,496
150-249	-	52	52	-	26.91	26.91	-	811	811	5	969	252	244,263	1,932,433
250 or more	-	22	22	-	25.41	25.41	-	736	736	1	370	260	96,200	865,800
Total or average	3	536	539	.19	33.91	34.10	1,139	1,074	2,212	828	8,201	236	1,932,082	15,808,147
Crushed and broken stone 1/:														
1-4	5	485	490	.33	32.42	32.76	2,005	1,758	3,763	4,400	8,088	219	1,767,846	14,959,545
5-9	6	531	537	.30	26.90	27.20	1,824	1,379	3,203	1,483	9,684	237	2,293,789	19,741,450
10-19	12	681	693	.43	24.66	25.10	2,607	913	3,520	974	12,803	248	3,173,709	27,613,294
20-34	9	495	504	.40	21.98	22.38	2,398	998	3,396	393	9,831	268	2,634,085	22,519,550
35-49	2	202	204	.17	17.47	17.64	1,038	680	1,718	115	4,730	290	1,371,956	11,562,616
50-99	3	463	466	.09	13.46	13.55	523	707	1,231	196	13,821	306	4,231,834	34,385,789
100-149	3	182	185	.15	8.93	9.08	883	518	1,401	68	8,246	307	2,528,817	20,381,038
150-249	-	65	65	-	6.23	6.23	-	210	210	24	4,178	310	1,296,717	10,441,559
250 or more	-	26	26	-	3.82	3.82	-	164	164	7	2,428	351	851,515	6,812,129
Total or average	40	3,130	3,170	.24	18.58	18.82	1,425	874	2,299	7,660	73,809	273	20,150,268	168,416,970
Grand total or average	43	3,666	3,709	.23	19.90	20.13	1,400	891	2,292	8,488	82,010	269	22,082,350	184,225,117

1/ Same as nondimension stone.

TABLE A-15. - Injury experience and worktime data by general work location at stone quarries and mills in the United States, by kind of stone, 1970

Kind of stone	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Injuries															
Cement 1/	-	-	-	1	-	1	3	4	1	-	1	56	1	58	305	363
Granite	-	-	-	3	-	3	2	5	-	-	-	227	-	227	202	429
Limestone	1	2	3	11	2	16	8	24	42	35	77	817	59	953	697	1,650
Limestone (chief product, lime)	-	-	-	1	-	1	-	1	23	-	23	80	-	103	269	372
Marble	-	-	-	-	-	-	-	-	12	-	12	22	-	34	106	140
Sandstone	-	-	-	3	-	3	1	4	4	3	7	127	-	134	162	296
Slate	-	-	-	1	-	1	-	1	4	-	4	21	-	25	24	49
Traprock	-	-	-	3	-	3	-	3	-	-	-	180	-	180	99	279
Miscellaneous stone	-	-	-	1	-	1	-	1	-	-	-	51	-	51	37	88
Total	1	2	3	24	2	29	14	43	86	38	124	1,581	60	1,765	1,901	3,666
	Frequency rates per million man-hours															
Cement 1/	-	-	-	0.18	-	0.16	0.06	0.07	3.12	-	2.75	9.83	13.16	9.45	6.33	6.68
Granite	-	-	-	.37	-	.37	.25	.31	-	-	-	27.83	-	27.67	25.11	26.40
Limestone	0.40	2.24	0.88	.31	1.39	.40	.30	.36	16.68	39.18	22.58	23.36	40.88	23.93	25.87	24.71
Limestone (chief product, lime)	-	-	-	.35	-	.23	-	.05	19.38	-	16.02	27.89	-	23.93	19.24	20.34
Marble	-	-	-	-	-	-	-	-	26.99	-	21.84	25.11	-	23.85	31.99	29.54
Sandstone	-	-	-	.74	-	.71	.22	.45	24.85	59.42	33.10	31.44	-	31.53	34.94	33.31
Slate	-	-	-	1.35	-	1.29	-	.44	152.39	-	112.17	28.33	-	32.18	16.28	21.77
Traprock	-	-	-	.51	-	.51	-	.32	-	-	-	30.47	-	30.43	29.57	30.12
Miscellaneous stone	-	-	-	.51	-	.51	-	.29	-	-	-	25.91	-	25.90	25.20	25.60
Combined rate	.21	1.47	.50	.37	1.32	.40	.13	.23	18.31	27.90	20.46	24.24	39.49	24.24	17.06	19.90
	Severity rates per million man-hours															
Cement 1/	-	-	-	1,053	-	978	373	442	112	-	99	549	145	517	464	470
Granite	-	-	-	2,207	-	2,194	1,491	1,846	-	-	-	1,874	-	1,864	627	1,251
Limestone	2,384	13,433	5,278	1,887	8,314	2,411	1,782	2,157	294	1,043	490	1,097	1,024	1,043	1,302	1,147
Limestone (chief product, lime)	-	-	-	2,091	-	1,394	-	328	405	-	335	763	-	620	600	605
Marble	-	-	-	-	-	-	-	-	373	-	302	4,024	-	2,590	952	1,444
Sandstone	-	-	-	4,457	-	4,235	1,294	2,701	1,348	1,010	1,267	997	-	1,010	1,042	1,027
Slate	-	-	-	8,095	-	7,723	-	2,666	1,295	-	953	1,346	-	1,328	3,319	2,632
Traprock	-	-	-	3,047	-	3,043	-	1,943	-	-	-	685	-	684	692	687
Miscellaneous stone	-	-	-	3,048	-	3,048	-	1,746	-	-	-	818	-	818	549	703
Combined rate	1,277	8,811	2,970	2,208	7,898	2,390	754	1,400	356	722	438	1,122	980	1,062	780	891

1/ Includes limestone or other stones used in manufacturing cement.

TABLE A-15. - Injury experience and worktime data by general work location at stone quarries and mills in the United States, by kind of stone, 1970 - Continued

Kind of stone	Active operations		Average men working daily								Average days active				
	Quarries	Mills	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines	Open quarries	Other surface mining	Total mining activities	Mills
			Underground	Surface	Total										
Cement 1/	206	192	172	24	196	2,686	38	2,920	18,220	21,140	232	263	250	261	330
Granite	436	255	17	5	22	3,902	-	3,924	3,674	7,598	267	242	-	242	252
Limestone	2,671	1,853	1,242	417	1,659	16,709	435	18,803	12,442	31,245	247	242	311	244	251
Limestone (chief product, lime)	103	156	541	102	643	1,272	-	1,915	5,480	7,395	279	267	-	271	317
Marble	99	50	195	47	242	479	-	721	1,574	2,295	265	225	-	239	254
Sandstone	548	295	68	20	88	2,193	-	2,281	2,207	4,488	280	221	-	223	257
Slate	59	48	13	5	18	387	-	405	691	1,096	229	238	-	238	265
Traprock	686	394	2	1	3	3,178	-	3,181	1,701	4,882	277	224	-	224	238
Miscellaneous stone	307	130	-	-	-	1,133	1	1,134	737	1,871	-	211	8	211	247
Total or average	5,115	3,373	2,250	621	2,871	31,939	474	35,284	46,726	82,010	256	240	306	242	290

Kind of stone	Man-days worked								Man-hours worked							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
Cement 1/	39,988	5,462	45,450	705,752	9,495	760,697	6,010,990	6,771,687	320,157	43,448	363,605	5,697,085	75,963	6,136,653	48,210,791	54,347,444
Granite	4,629	1,239	5,868	942,922	-	948,790	924,457	1,873,247	37,021	9,912	46,933	8,156,948	-	8,203,881	8,045,729	16,249,610
Limestone	303,381	106,700	410,081	4,042,212	135,494	4,587,787	3,127,435	7,715,222	2,517,304	893,326	3,410,630	34,967,225	1,443,417	39,821,272	26,940,612	66,761,884
Limestone (chief product, lime)	150,279	29,358	179,637	339,752	-	519,389	1,736,448	2,255,837	1,187,081	248,462	1,435,543	2,868,784	-	4,304,327	13,984,358	18,288,685
Marble	51,892	12,281	64,173	108,009	-	172,182	399,186	571,368	444,689	104,882	549,571	876,163	-	1,425,734	3,313,838	4,739,572
Sandstone	18,836	5,799	24,635	484,442	-	509,077	567,112	1,076,189	160,959	50,490	211,449	4,039,023	-	4,250,472	4,635,906	8,886,378
Slate	3,056	1,074	4,130	92,181	-	96,311	183,099	279,410	26,249	9,410	35,659	741,233	-	776,892	1,474,018	2,250,910
Traprock	582	250	832	712,971	-	713,803	404,156	1,117,959	4,655	2,000	6,655	5,908,322	-	5,914,977	3,348,551	9,263,528
Miscellaneous stone	-	-	-	239,329	8	239,337	182,094	421,431	-	-	-	1,968,688	60	1,968,748	1,468,358	3,437,106
Total	572,643	162,163	734,806	7,667,570	144,997	8,547,373	13,534,977	22,082,350	4,698,115	1,361,930	6,060,045	65,223,471	1,519,440	72,802,956	111,422,161	184,225,117

1/ Includes limestone or other stones used in manufacturing cement.

TABLE A-16. - Injury experience and worktime data by general work location at cement operations in the United States, by State, 1970

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Injuries															
Alabama	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	7
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Arkansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5
California	-	-	-	1	-	1	-	1	1	-	1	6	1	8	21	29
Colorado	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
Florida	-	-	-	-	-	-	-	-	-	-	-	4	-	4	8	12
Georgia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Hawaii	-	-	-	-	-	-	-	-	-	-	-	1	-	1	13	14
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Illinois	-	-	-	-	-	-	-	-	-	-	-	2	-	2	8	10
Indiana	-	-	-	-	-	-	-	-	-	-	-	1	-	1	4	5
Iowa	-	-	-	-	-	-	1	1	-	-	-	2	-	2	8	10
Kansas	-	-	-	-	-	-	-	-	-	-	-	1	-	1	3	4
Kentucky	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	6
Maine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5
Michigan	-	-	-	-	-	-	-	-	-	-	-	3	-	3	14	17
Minnesota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mississippi	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
Missouri	-	-	-	-	-	-	-	-	-	-	-	2	-	2	24	26
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Nebraska	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
Nevada	-	-	-	-	-	-	-	-	-	-	-	1	-	1	7	8
New Mexico	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	2
New York	-	-	-	-	-	-	-	-	-	-	-	3	-	3	42	45
North Carolina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Ohio	-	-	-	-	-	-	-	-	-	-	-	5	-	5	5	10
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	1	-	1	3	4
Oregon	-	-	-	-	-	-	-	-	-	-	-	1	-	1	24	25
Pennsylvania	-	-	-	-	-	-	1	1	-	-	-	1	-	1	27	28
South Carolina	-	-	-	-	-	-	-	-	-	-	-	1	-	1	11	12
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
Tennessee	-	-	-	-	-	-	-	-	-	-	-	2	-	2	5	7
Texas	-	-	-	-	-	-	1	1	-	-	-	6	-	6	29	35
Utah	-	-	-	-	-	-	-	-	-	-	-	3	-	3	4	7
Virginia	-	-	-	-	-	-	-	-	-	-	-	7	-	7	8	15
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
West Virginia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Total	-	-	-	1	-	1	3	4	1	-	1	56	1	58	305	363

TABLE A-16. - Injury experience and worktime data by general work location at cement operations in the United States, by State, 1970 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Frequency rates per million man-hours															
Alabama	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.65	3.34
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.07	1.83
Arkansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.67	8.07
California	-	-	-	1.30	-	1.04	-	0.13	9.90	-	8.99	7.79	13.16	8.35	3.25	3.91
Colorado	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.36	3.01
Florida	-	-	-	-	-	-	-	-	-	-	-	29.37	-	29.37	5.49	7.53
Georgia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.32	1.21
Hawaii	-	-	-	-	-	-	-	-	-	-	-	22.47	-	22.47	25.83	25.56
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.56	10.55
Illinois	-	-	-	-	-	-	-	-	-	-	-	12.19	-	12.19	7.40	8.03
Indiana	-	-	-	-	-	-	-	-	-	-	-	8.85	-	8.85	1.54	1.84
Iowa	-	-	-	-	-	-	0.58	.52	-	-	-	10.78	-	10.78	4.60	5.20
Kansas	-	-	-	-	-	-	-	-	-	-	-	5.20	-	5.20	2.48	2.85
Kentucky	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.19	11.85
Maine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.59	7.18
Michigan	-	-	-	-	-	-	-	-	-	-	-	8.58	-	8.58	4.43	4.84
Minnesota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mississippi	-	-	-	-	-	-	-	-	-	-	-	30.39	-	30.39	-	5.37
Missouri	-	-	-	-	-	-	-	-	-	-	-	6.21	-	6.21	12.05	11.24
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.23	2.85
Nebraska	-	-	-	-	-	-	-	-	-	-	-	12.13	-	12.13	-	1.50
Nevada	-	-	-	-	-	-	-	-	-	-	-	56.97	-	56.97	48.28	49.22
New Mexico	-	-	-	-	-	-	-	-	-	-	-	45.27	-	45.27	6.34	11.12
New York	-	-	-	-	-	-	-	-	-	-	-	7.65	-	7.65	13.96	13.23
North Carolina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.78	3.04
Ohio	-	-	-	-	-	-	-	-	-	-	-	14.69	-	10.69	2.53	4.10
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	15.77	-	15.77	4.98	6.01
Oregon	-	-	-	-	-	-	-	-	-	-	-	160.26	-	160.26	58.11	59.63
Pennsylvania	-	-	-	-	-	-	.17	.15	-	-	-	1.73	-	1.42	4.55	4.22
South Carolina	-	-	-	-	-	-	-	-	-	-	-	15.13	-	15.13	16.87	16.71
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.19	8.46
Tennessee	-	-	-	-	-	-	-	-	-	-	-	8.49	-	8.49	3.48	4.18
Texas	-	-	-	-	-	-	.25	.23	-	-	-	21.64	-	21.64	7.25	8.18
Utah	-	-	-	-	-	-	-	-	-	-	-	98.70	-	98.70	12.34	19.75
Virginia	-	-	-	-	-	-	-	-	-	-	-	31.02	-	31.02	12.93	17.77
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.29	2.07
West Virginia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.98	4.10
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.99	6.23
Combined rate	-	-	-	.18	-	.16	.06	.07	3.12	-	2.75	9.83	13.16	9.45	6.33	6.68

TABLE A-16. - Injury experience and worktime data by general work location at cement operations in the United States, by State, 1970 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Severity rates per million man-hours															
Alabama	-	-	-	-	-	-	-	-	-	-	-	-	-	-	110	101
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	11
Arkansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	938	873
California	-	-	-	7,786	-	6,264	-	808	356	-	324	1,427	145	1,198	187	318
Colorado	-	-	-	-	-	-	-	-	-	-	-	-	-	-	123	110
Florida	-	-	-	-	-	-	-	-	-	-	-	2,717	-	2,717	169	387
Georgia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	418	382
Hawaii	-	-	-	-	-	-	-	-	-	-	-	1,123	-	1,123	731	763
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	277	253
Illinois	-	-	-	-	-	-	-	-	-	-	-	902	-	902	563	608
Indiana	-	-	-	-	-	-	-	-	-	-	-	124	-	124	138	138
Iowa	-	-	-	-	-	-	3,450	3,117	-	-	-	1,228	-	1,228	248	342
Kansas	-	-	-	-	-	-	-	-	-	-	-	234	-	234	201	205
Kentucky	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	713	464
Maine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	397	332
Michigan	-	-	-	-	-	-	-	-	-	-	-	303	-	303	272	276
Minnesota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mississippi	-	-	-	-	-	-	-	-	-	-	-	881	-	881	-	156
Missouri	-	-	-	-	-	-	-	-	-	-	-	62	-	62	396	350
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	468	413
Nebraska	-	-	-	-	-	-	-	-	-	-	-	837	-	837	-	103
Nevada	-	-	-	-	-	-	-	-	-	-	-	855	-	855	448	492
New Mexico	-	-	-	-	-	-	-	-	-	-	-	2,218	-	2,218	203	450
New York	-	-	-	-	-	-	-	-	-	-	-	653	-	653	504	521
North Carolina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	98	79
Ohio	-	-	-	-	-	-	-	-	-	-	-	523	-	380	86	143
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	789	-	789	198	254
Oregon	-	-	-	-	-	-	-	-	-	-	-	1,923	-	1,923	11,861	11,713
Pennsylvania	-	-	-	-	-	-	1,012	904	-	-	-	81	-	67	1,061	956
South Carolina	-	-	-	-	-	-	-	-	-	-	-	1,740	-	1,740	219	359
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	83	76
Tennessee	-	-	-	-	-	-	-	-	-	-	-	178	-	178	245	235
Texas	-	-	-	-	-	-	1,499	1,402	-	-	-	220	-	220	303	298
Utah	-	-	-	-	-	-	-	-	-	-	-	559	-	559	765	748
Virginia	-	-	-	-	-	-	-	-	-	-	-	461	-	461	115	207
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	454	409
West Virginia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	214	176
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	98	87
Combined rate	-	-	-	1,053	-	978	373	442	112	-	99	549	145	517	464	470

TABLE A-16. - Injury experience and worktime data by general work location at cement operations in the United States, by State, 1970 - Continued

State	Active operations		Average men working daily							Average days active				
	Quarries	Mills	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines	Open quarries	Other surface mining	Total mining activities	Mills
			Underground	Surface	Total										
Alabama	10	11	-	-	-	91	-	91	805	896	-	238	-	238	298
Arizona	3	2	-	-	-	26	-	26	166	192	-	299	-	299	364
Arkansas	3	5	-	-	-	21	-	21	198	219	-	253	-	253	364
California	21	15	50	5	55	347	38	440	2,250	2,690	253	276	250	271	357
Colorado	3	3	-	-	-	31	-	31	204	235	-	278	-	278	365
Florida	4	4	-	-	-	55	-	55	498	553	-	281	-	281	361
Georgia	6	4	-	-	-	36	-	36	268	304	-	246	-	246	353
Hawaii	2	3	-	-	-	20	-	20	184	204	-	293	-	293	353
Idaho	1	1	-	-	-	4	-	4	48	52	-	259	-	259	225
Illinois	4	4	-	-	-	92	-	92	476	568	-	217	-	217	284
Indiana	5	7	-	-	-	56	-	56	935	991	-	252	-	252	348
Iowa	6	5	-	-	-	90	-	90	596	686	-	260	-	260	365
Kansas	10	7	-	-	-	94	-	94	526	620	-	259	-	259	287
Kentucky	1	1	-	-	-	7	-	7	50	57	-	234	-	234	364
Louisiana	2	2	-	-	-	85	-	85	119	204	-	260	-	260	346
Maine	1	1	-	-	-	17	-	17	106	123	-	294	-	294	365
Maryland	5	4	-	-	-	56	-	56	206	262	-	256	-	256	353
Michigan	10	9	-	-	-	133	-	133	1,126	1,259	-	329	-	329	351
Minnesota	-	1	-	-	-	-	-	-	105	105	-	-	-	-	304
Mississippi	3	2	-	-	-	18	-	18	95	113	-	228	-	228	202
Missouri	7	7	-	-	-	138	-	138	729	867	-	292	-	292	345
Montana	3	2	-	-	-	17	-	17	128	145	-	300	-	300	303
Nebraska	1	2	-	-	-	45	-	45	211	256	-	229	-	229	346
Nevada	2	1	-	-	-	8	-	8	50	58	-	274	-	274	362
New Mexico	1	1	-	-	-	10	-	10	54	64	-	276	-	276	365
New York	10	12	-	-	-	194	-	194	1,084	1,278	-	253	-	253	347
North Carolina	1	1	-	-	-	26	-	26	91	117	-	307	-	307	364
Ohio	13	9	64	16	80	167	-	247	972	1,219	199	255	-	237	254
Oklahoma	4	3	-	-	-	31	-	31	236	267	-	256	-	256	319
Oregon	1	3	-	-	-	3	-	3	187	190	-	260	-	260	276
Pennsylvania	21	21	58	3	61	282	-	343	2,209	2,552	256	246	-	248	330
South Carolina	2	2	-	-	-	31	-	31	223	254	-	266	-	266	365
South Dakota	1	1	-	-	-	12	-	12	120	132	-	194	-	194	227
Tennessee	6	6	-	-	-	102	-	102	557	659	-	289	-	289	323
Texas	17	18	-	-	-	134	-	134	1,486	1,620	-	251	-	251	337
Utah	2	2	-	-	-	16	-	16	129	145	-	237	-	237	314
Virginia	5	3	-	-	-	112	-	112	310	422	-	249	-	249	249
Washington	3	3	-	-	-	26	-	26	193	219	-	230	-	230	282
West Virginia	1	1	-	-	-	38	-	38	176	214	-	285	-	285	285
Wisconsin	-	2	-	-	-	-	-	-	65	65	-	-	-	-	340
Wyoming	5	1	-	-	-	15	-	15	49	64	-	146	-	146	365
Total or average	206	192	172	24	196	2,686	38	2,920	18,220	21,140	232	263	250	261	330

TABLE A-16. - Injury experience and worktime data by general work location at cement operations in the United States, by State, 1970 - Continued

State	Man-days worked								Man-hours worked							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
Alabama	-	-	-	21,682	-	21,682	239,557	261,239	-	-	-	175,238	-	175,238	1,919,812	2,095,050
Arizona	-	-	-	7,775	-	7,775	60,437	68,212	-	-	-	62,195	-	62,195	483,499	545,694
Arkansas	-	-	-	5,303	-	5,303	72,115	77,418	-	-	-	42,425	-	42,425	576,927	619,352
California	12,600	1,300	13,900	95,787	9,495	119,182	803,377	922,559	101,050	10,150	111,200	770,654	75,963	957,817	6,465,091	7,422,908
Colorado	-	-	-	8,612	-	8,612	74,371	82,983	-	-	-	68,899	-	68,899	594,974	663,873
Florida	-	-	-	15,466	-	15,466	179,831	195,297	-	-	-	136,181	-	136,181	1,457,551	1,593,732
Georgia	-	-	-	8,851	-	8,851	94,511	103,362	-	-	-	70,926	-	70,926	756,606	827,532
Hawaii	-	-	-	5,851	-	5,851	64,947	70,798	-	-	-	44,506	-	44,506	503,250	547,756
Idaho	-	-	-	1,035	-	1,035	10,811	11,846	-	-	-	8,278	-	8,278	86,495	94,773
Illinois	-	-	-	19,933	-	19,933	135,197	155,130	-	-	-	164,090	-	164,090	1,081,568	1,245,658
Indiana	-	-	-	14,129	-	14,129	325,375	339,504	-	-	-	113,036	-	113,036	2,602,997	2,716,033
Iowa	-	-	-	23,381	-	23,381	217,383	240,764	-	-	-	185,602	-	185,602	1,739,059	1,924,661
Kansas	-	-	-	24,334	-	24,334	151,024	175,358	-	-	-	192,164	-	192,164	1,210,186	1,402,350
Kentucky	-	-	-	1,636	-	1,636	18,200	19,836	-	-	-	13,084	-	13,084	145,600	158,684
Louisiana	-	-	-	22,076	-	22,076	41,222	63,298	-	-	-	176,609	-	176,609	329,776	506,385
Maine	-	-	-	5,002	-	5,002	38,644	43,646	-	-	-	40,019	-	40,019	309,150	349,169
Maryland	-	-	-	14,344	-	14,344	72,761	87,105	-	-	-	114,747	-	114,747	582,082	696,829
Michigan	-	-	-	43,718	-	43,718	395,458	439,176	-	-	-	349,746	-	349,746	3,163,673	3,513,419
Minnesota	-	-	-	-	-	-	31,901	31,901	-	-	-	-	-	-	255,208	255,208
Mississippi	-	-	-	4,113	-	4,113	19,154	23,267	-	-	-	32,910	-	32,910	153,233	186,143
Missouri	-	-	-	40,256	-	40,256	251,614	291,870	-	-	-	322,048	-	322,048	1,991,384	2,313,432
Montana	-	-	-	5,099	-	5,099	38,734	43,833	-	-	-	40,795	-	40,795	309,871	350,666
Nebraska	-	-	-	10,306	-	10,306	73,057	83,363	-	-	-	82,452	-	82,452	584,458	666,910
Nevada	-	-	-	2,194	-	2,194	18,123	20,317	-	-	-	17,554	-	17,554	144,985	162,539
New Mexico	-	-	-	2,761	-	2,761	19,729	22,490	-	-	-	22,088	-	22,088	157,832	179,920
New York	-	-	-	48,993	-	48,993	375,911	424,904	-	-	-	391,952	-	391,952	3,009,407	3,401,359
North Carolina	-	-	-	7,979	-	7,979	33,089	41,068	-	-	-	63,828	-	63,828	264,711	328,539
Ohio	12,664	3,262	15,926	42,555	-	58,481	246,705	305,186	101,312	26,098	127,410	340,448	-	467,858	1,973,638	2,441,496
Oklahoma	-	-	-	7,924	-	7,924	75,309	83,233	-	-	-	63,395	-	63,395	602,468	665,863
Oregon	-	-	-	780	-	780	51,630	52,410	-	-	-	6,240	-	6,240	413,037	419,277
Pennsylvania	14,724	900	15,624	69,480	-	85,104	729,344	814,448	117,795	7,200	124,995	579,570	-	704,565	5,931,369	6,635,934
South Carolina	-	-	-	8,260	-	8,260	81,490	89,750	-	-	-	66,080	-	66,080	651,922	718,002
South Dakota	-	-	-	2,326	-	2,326	27,213	29,539	-	-	-	18,608	-	18,608	217,711	236,319
Tennessee	-	-	-	29,480	-	29,480	179,909	209,389	-	-	-	235,444	-	235,444	1,438,393	1,673,837
Texas	-	-	-	33,640	-	33,640	500,329	533,969	-	-	-	277,220	-	277,220	4,002,631	4,279,851
Utah	-	-	-	3,799	-	3,799	40,508	44,307	-	-	-	30,395	-	30,395	324,063	354,458
Virginia	-	-	-	27,892	-	27,892	77,323	105,215	-	-	-	225,655	-	225,655	618,597	844,252
Washington	-	-	-	5,980	-	5,980	54,520	60,500	-	-	-	47,844	-	47,844	436,156	484,000
West Virginia	-	-	-	10,831	-	10,831	50,187	61,018	-	-	-	86,648	-	86,648	401,498	488,146
Wisconsin	-	-	-	-	-	-	22,105	22,105	-	-	-	-	-	-	176,843	176,843
Wyoming	-	-	-	2,189	-	2,189	17,885	20,074	-	-	-	17,512	-	17,512	143,080	160,592
Total	39,988	5,462	45,450	705,752	9,495	760,697	6,010,990	6,771,687	320,157	43,448	363,605	5,697,085	75,963	6,136,653	48,210,791	54,347,444

TABLE A-17. - Injury experience and worktime data by general work location at granite operations in the United States, by State, 1970

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Injuries															
Alaska	-	-	-	-	-	-	-	-	-	-	-	9	-	9	2	11
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arkansas	-	-	-	-	-	-	-	-	-	-	-	11	-	11	8	19
California	-	-	-	-	-	-	-	-	-	-	-	10	-	10	5	15
Colorado	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
Connecticut	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-	2
Georgia	-	-	-	1	-	1	-	1	-	-	-	46	-	46	53	99
Idaho	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-	2
Maine	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
Maryland	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-	2
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	3	-	3	5	8
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Minnesota	-	-	-	-	-	-	-	-	-	-	-	11	-	11	30	41
Missouri	-	-	-	-	-	-	-	-	-	-	-	2	-	2	2	4
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nevada	-	-	-	-	-	-	-	-	-	-	-	5	-	5	1	6
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	5	-	5	7	12
New Jersey	-	-	-	-	-	-	-	-	-	-	-	8	-	8	10	18
New Mexico	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
New York	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Carolina	-	-	-	-	-	-	1	1	-	-	-	13	-	13	29	42
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	6	-	6	9	15
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Carolina	-	-	-	1	-	1	-	1	-	-	-	9	-	9	1	10
South Dakota	-	-	-	-	-	-	-	-	-	-	-	21	-	21	3	24
Texas	-	-	-	-	-	-	-	-	-	-	-	2	-	2	15	17
Vermont	-	-	-	-	-	-	-	-	-	-	-	36	-	36	11	47
Virginia	-	-	-	1	-	1	-	1	-	-	-	12	-	12	8	20
Washington	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
Wisconsin	-	-	-	-	-	-	1	1	-	-	-	8	-	8	2	10
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Total	-	-	-	3	-	3	2	5	-	-	-	227	-	227	202	429

TABLE A-17. - Injury experience and worktime data by general work location at granite operations in the United States, by State, 1970 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Frequency rates per million man-hours															
Alaska	-	-	-	-	-	-	-	-	-	-	-	24.66	-	24.66	26.69	25.00
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arkansas	-	-	-	-	-	-	-	-	-	-	-	35.42	-	35.42	15.65	23.12
California	-	-	-	-	-	-	-	-	-	-	-	44.39	-	44.39	21.38	32.67
Colorado	-	-	-	-	-	-	-	-	-	-	-	19.51	-	19.51	-	12.15
Connecticut	-	-	-	-	-	-	-	-	-	-	-	70.70	-	70.70	-	29.89
Georgia	-	-	-	0.65	-	0.65	-	0.30	-	-	-	30.01	-	30.01	29.79	29.89
Idaho	-	-	-	-	-	-	-	-	-	-	-	17.19	-	13.59	-	13.39
Maine	-	-	-	-	-	-	-	-	-	-	-	43.14	-	43.14	-	33.06
Maryland	-	-	-	-	-	-	-	-	-	-	-	43.94	-	43.94	-	34.63
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	26.52	-	26.52	57.92	40.11
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Minnesota	-	-	-	-	-	-	-	-	-	-	-	40.98	-	40.98	25.09	28.00
Missouri	-	-	-	-	-	-	-	-	-	-	-	126.26	-	126.26	50.42	72.06
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nevada	-	-	-	-	-	-	-	-	-	-	-	27.90	-	27.90	28.23	27.95
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	68.19	-	68.19	32.44	41.51
New Jersey	-	-	-	-	-	-	-	-	-	-	-	46.53	-	46.53	90.63	63.77
New Mexico	-	-	-	-	-	-	-	-	-	-	-	341.18	-	341.18	-	203.50
New York	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Carolina	-	-	-	-	-	-	0.79	.33	-	-	-	7.21	-	7.21	22.89	13.68
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	95.58	-	95.58	55.66	66.83
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Carolina	-	-	-	1.59	-	1.59	-	.91	-	-	-	14.30	-	14.30	2.15	9.14
South Dakota	-	-	-	-	-	-	-	-	-	-	-	87.53	-	87.53	12.09	49.17
Texas	-	-	-	-	-	-	-	-	-	-	-	20.07	-	20.07	53.01	44.43
Vermont	-	-	-	-	-	-	-	-	-	-	-	49.05	-	49.05	24.03	39.44
Virginia	-	-	-	1.38	-	1.38	-	.75	-	-	-	16.58	-	16.58	12.98	14.92
Washington	-	-	-	-	-	-	-	-	-	-	-	30.71	-	30.71	-	24.52
Wisconsin	-	-	-	-	-	-	9.01	3.29	-	-	-	41.40	-	41.40	18.02	32.87
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	72.72	16.95
Combined rate	-	-	-	.37	-	.37	.25	.31	-	-	-	27.83	-	27.67	25.11	26.40

TABLE A-17. - Injury experience and worktime data by general work location at granite operations in the United States, by State, 1970 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Severity rates per million man-hours															
Alaska	-	-	-	-	-	-	-	-	-	-	-	589	-	589	1,268	705
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arkansas	-	-	-	-	-	-	-	-	-	-	-	15,035	-	15,035	221	5,819
California	-	-	-	-	-	-	-	-	-	-	-	8,883	-	8,883	428	4,575
Colorado	-	-	-	-	-	-	-	-	-	-	-	371	-	371	-	231
Connecticut	-	-	-	-	-	-	-	-	-	-	-	177	-	177	-	75
Georgia	-	-	-	3,915	-	3,915	-	1,812	-	-	-	1,321	-	1,321	1,270	1,294
Idaho	-	-	-	-	-	-	-	-	-	-	-	490	-	387	-	382
Maine	-	-	-	-	-	-	-	-	-	-	-	129	-	129	-	99
Maryland	-	-	-	-	-	-	-	-	-	-	-	901	-	901	-	710
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	787	-	787	1,170	953
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Minnesota	-	-	-	-	-	-	-	-	-	-	-	961	-	961	643	701
Missouri	-	-	-	-	-	-	-	-	-	-	-	568	-	568	252	342
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nevada	-	-	-	-	-	-	-	-	-	-	-	792	-	792	565	755
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	750	-	750	246	374
New Jersey	-	-	-	-	-	-	-	-	-	-	-	1,198	-	1,198	589	960
New Mexico	-	-	-	-	-	-	-	-	-	-	-	6,482	-	6,482	-	3,867
New York	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Carolina	-	-	-	-	-	-	4,736	1,955	-	-	-	427	-	427	549	477
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	4,572	-	4,572	1,021	2,014
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Carolina	-	-	-	9,532	-	9,532	-	5,483	-	-	-	761	-	761	65	465
South Dakota	-	-	-	-	-	-	-	-	-	-	-	1,676	-	1,676	60	854
Texas	-	-	-	-	-	-	-	-	-	-	-	60	-	60	431	335
Vermont	-	-	-	-	-	-	-	-	-	-	-	2,211	-	2,211	485	1,548
Virginia	-	-	-	8,290	-	8,290	-	4,477	-	-	-	1,882	-	1,882	200	1,108
Washington	-	-	-	-	-	-	-	-	-	-	-	645	-	645	-	515
Wisconsin	-	-	-	-	-	-	54,051	19,722	-	-	-	2,733	-	2,733	739	2,005
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	73	17
Combined rate	-	-	-	2,207	-	2,194	1,491	1,846	-	-	-	1,874	-	1,864	627	1,251

TABLE A-17. - Injury experience and worktime data by general work location at granite operations in the United States, by State, 1970 - Continued

State	Active operations		Average men working daily							Average days active				
	Quarries	Mills	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines	Open quarries	Other surface mining	Total mining activities	Mills
			Underground	Surface	Total										
Alaska	11	10	-	-	-	186	-	186	37	223	-	218	-	218	225
Arizona	3	2	-	-	-	5	-	5	6	11	-	40	-	40	48
Arkansas	6	5	-	-	-	125	-	125	227	352	-	269	-	269	264
California	43	17	-	-	-	130	-	130	111	241	-	214	-	214	258
Colorado	65	5	-	-	-	28	-	28	16	44	-	208	-	208	235
Connecticut	5	2	-	-	-	14	-	14	17	31	-	253	-	253	284
Georgia	53	45	-	-	-	675	-	675	804	1,479	-	253	-	253	252
Idaho	4	1	10	3	13	55	-	68	1	69	296	263	-	269	246
Maine	5	2	-	-	-	10	-	10	3	13	-	252	-	252	252
Maryland	1	1	-	-	-	19	-	19	5	24	-	266	-	266	272
Massachusetts	9	9	-	-	-	71	-	71	51	122	-	199	-	199	208
Michigan	1	1	-	-	-	8	-	8	2	10	-	176	-	176	178
Minnesota	21	6	-	-	-	142	-	142	506	648	-	215	-	215	259
Missouri	1	1	-	-	-	9	-	9	22	31	-	220	-	220	225
Montana	-	1	-	-	-	-	-	-	3	3	-	-	-	-	55
Nevada	5	5	-	-	-	81	-	81	16	97	-	246	-	246	246
New Hampshire	3	2	-	-	-	38	-	38	108	146	-	241	-	241	250
New Jersey	6	6	-	-	-	79	-	79	53	132	-	262	-	262	246
New Mexico	2	2	-	-	-	3	-	3	3	6	-	122	-	122	83
New York	6	4	7	2	9	24	-	33	6	39	225	183	-	194	199
North Carolina	78	60	-	-	-	861	-	861	602	1,463	-	245	-	245	250
Oklahoma	10	7	-	-	-	35	-	35	80	115	-	217	-	217	252
Oregon	2	2	-	-	-	1	-	1	1	2	-	312	-	312	312
Pennsylvania	2	2	-	-	-	11	-	11	12	23	-	191	-	191	200
Rhode Island	1	-	-	-	-	2	-	2	-	2	-	227	-	227	-
South Carolina	16	11	-	-	-	286	-	286	199	485	-	251	-	251	266
South Dakota	7	2	-	-	-	104	-	104	107	211	-	255	-	255	258
Texas	6	2	-	-	-	50	-	50	130	180	-	226	-	226	247
Vermont	7	4	-	-	-	376	-	376	211	587	-	246	-	246	237
Virginia	26	26	-	-	-	321	-	321	263	584	-	248	-	248	262
Washington	8	4	-	-	-	24	-	24	6	30	-	170	-	170	171
Wisconsin	19	6	-	-	-	103	-	103	57	160	-	227	-	227	243
Wyoming	4	2	-	-	-	26	-	26	9	35	-	217	-	217	191
Total or average	436	255	17	5	22	3,902	-	3,924	3,674	7,598	267	242	-	242	252

TABLE A-17. - Injury experience and worktime data by general work location at granite operations in the United States, by State, 1970 - Continued

State	Man-days worked							Man-hours worked						
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
Alaska	-	-	-	40,574	-	40,574	8,327	48,901	-	-	-	365,030	-	365,030	74,940	439,970
Arizona	-	-	-	200	-	200	285	485	-	-	-	1,579	-	1,579	2,280	3,859
Arkansas	-	-	-	33,578	-	33,578	59,904	93,482	-	-	-	310,536	-	310,536	511,212	821,748
California	-	-	-	27,759	-	27,759	28,589	56,348	-	-	-	225,267	-	225,267	233,918	459,185
Colorado	-	-	-	5,812	-	5,812	3,761	9,573	-	-	-	51,266	-	51,266	31,040	82,306
Connecticut	-	-	-	3,536	-	3,536	4,828	8,364	-	-	-	28,289	-	28,289	38,624	66,913
Georgia	-	-	-	170,714	-	170,714	202,342	373,056	-	-	-	1,532,673	-	1,532,673	1,779,119	3,311,792
Idaho	3,077	769	3,846	14,451	-	18,297	246	18,543	24,607	6,152	30,759	116,363	-	147,122	2,219	149,341
Maine	-	-	-	2,515	-	2,515	755	3,270	-	-	-	23,180	-	23,180	7,070	30,250
Maryland	-	-	-	5,058	-	5,058	1,360	6,418	-	-	-	45,521	-	45,521	12,240	57,761
Massachusetts	-	-	-	14,141	-	14,141	10,615	24,756	-	-	-	113,127	-	113,127	86,323	199,450
Michigan	-	-	-	1,407	-	1,407	356	1,763	-	-	-	12,659	-	12,659	3,204	15,863
Minnesota	-	-	-	30,504	-	30,504	130,925	161,429	-	-	-	268,398	-	268,398	1,195,912	1,464,310
Missouri	-	-	-	1,980	-	1,980	4,959	6,939	-	-	-	15,840	-	15,840	39,670	55,510
Montana	-	-	-	-	-	-	165	165	-	-	-	-	-	-	1,320	1,320
Nevada	-	-	-	19,914	-	19,914	3,936	23,850	-	-	-	179,229	-	179,229	35,424	214,653
New Hampshire	-	-	-	9,166	-	9,166	26,970	36,136	-	-	-	73,324	-	73,324	215,760	289,084
New Jersey	-	-	-	20,659	-	20,659	13,045	33,704	-	-	-	171,917	-	171,917	110,334	282,251
New Mexico	-	-	-	367	-	367	248	615	-	-	-	2,931	-	2,931	1,983	4,914
New York	1,552	470	2,022	4,389	-	6,411	1,194	7,605	12,414	3,760	16,174	35,112	-	51,286	9,552	60,838
North Carolina	-	-	-	210,678	-	210,678	150,698	361,376	-	-	-	1,802,938	-	1,802,938	1,266,817	3,069,755
Oklahoma	-	-	-	7,612	-	7,612	20,156	27,768	-	-	-	62,777	-	62,777	161,685	224,462
Oregon	-	-	-	312	-	312	312	624	-	-	-	2,493	-	2,493	2,493	4,986
Pennsylvania	-	-	-	2,100	-	2,100	2,403	4,503	-	-	-	15,120	-	15,120	19,224	34,344
Rhode Island	-	-	-	454	-	454	-	454	-	-	-	3,680	-	3,680	-	3,680
South Carolina	-	-	-	71,852	-	71,852	52,868	124,720	-	-	-	629,466	-	629,466	464,886	1,094,352
South Dakota	-	-	-	26,565	-	26,565	27,581	54,146	-	-	-	239,909	-	239,909	248,225	488,134
Texas	-	-	-	11,281	-	11,281	32,156	43,437	-	-	-	99,644	-	99,644	282,977	382,621
Vermont	-	-	-	92,670	-	92,670	50,006	142,676	-	-	-	733,903	-	733,903	457,825	1,191,728
Virginia	-	-	-	79,557	-	79,557	68,867	148,424	-	-	-	723,757	-	723,757	616,469	1,340,226
Washington	-	-	-	4,070	-	4,070	1,028	5,098	-	-	-	32,565	-	32,565	8,225	40,790
Wisconsin	-	-	-	23,393	-	23,393	13,853	37,246	-	-	-	193,221	-	193,221	111,007	304,228
Wyoming	-	-	-	5,654	-	5,654	1,719	7,373	-	-	-	45,234	-	45,234	13,752	58,986
Total	4,629	1,239	5,868	942,922	-	948,790	924,457	1,873,247	37,021	9,912	46,933	8,156,948	-	8,203,881	8,045,729	16,249,610

TABLE A-18. - Injury experience and worktime data by general work location at limestone operations in the United States, by State, 1970

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Injuries															
Alabama	-	-	-	-	-	-	1	1	1	1	2	11	2	15	19	34
Alaska	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arizona	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
Arkansas	-	-	-	-	-	-	-	-	3	1	4	5	-	9	12	21
California	-	-	-	1	-	1	-	1	9	3	12	6	-	18	5	23
Colorado	-	-	-	-	-	-	-	-	-	-	-	3	-	3	6	9
Connecticut	-	-	-	-	-	-	-	-	-	-	-	2	-	2	1	3
Florida	-	-	-	-	2	2	1	3	-	-	-	51	3	54	54	108
Georgia	-	-	-	-	-	-	-	-	-	-	-	10	-	10	6	16
Hawaii	-	-	-	-	-	-	-	-	-	-	-	4	-	4	2	6
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Illinois	-	-	-	2	-	2	1	3	8	1	9	53	-	62	55	117
Indiana	-	-	-	1	-	1	-	1	-	-	-	53	-	53	55	108
Iowa	-	-	-	-	-	-	-	-	-	2	2	44	-	46	37	83
Kansas	-	-	-	-	-	-	-	-	-	6	6	16	-	22	20	42
Kentucky	-	1	1	-	-	1	-	1	14	12	26	53	-	79	32	111
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	23	23	10	33
Maine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	25	-	25	24	49
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Michigan	-	-	-	-	-	-	-	-	1	-	1	19	-	20	8	28
Minnesota	-	-	-	-	-	-	-	-	-	-	-	7	-	7	13	20
Mississippi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	1	-	1	-	-	1	-	1	4	1	5	48	-	53	39	92
Montana	-	-	-	-	-	-	-	-	-	-	-	2	-	2	3	5
Nebraska	-	-	-	-	-	-	-	-	1	-	1	11	-	12	18	30
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Jersey	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	2
New Mexico	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	2
New York	-	-	-	1	-	1	1	2	-	-	-	39	-	39	17	56
North Carolina	-	-	-	-	-	-	-	-	-	-	-	5	-	5	3	8
Ohio	-	-	-	-	-	-	-	-	-	-	-	40	-	40	36	76
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	31	-	31	19	50
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pennsylvania	-	-	-	1	-	1	-	1	-	1	1	57	-	58	48	106
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	2
South Carolina	-	-	-	-	-	-	1	1	-	-	-	1	-	1	-	1
South Dakota	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-	2
Tennessee	-	-	-	3	-	3	1	4	-	-	-	44	-	44	43	87
Texas	-	-	-	1	-	1	-	1	-	-	-	60	31	91	40	131
Utah	-	-	-	-	-	-	-	-	-	-	-	3	-	3	-	3
Vermont	-	-	-	-	-	-	-	-	-	-	-	1	-	1	2	3
Virginia	-	-	-	1	-	1	-	1	-	-	-	33	-	33	33	66
Washington	-	-	-	-	-	-	-	-	-	-	-	6	-	6	3	9
West Virginia	-	-	-	-	-	-	1	1	1	7	8	19	-	27	9	36
Wisconsin	-	-	-	-	-	-	1	1	-	-	-	48	-	48	21	69
Wyoming	-	1	1	-	-	1	-	1	-	-	-	1	-	1	-	1
Total	1	2	3	11	2	16	8	24	42	35	77	817	59	953	697	1,650

TABLE A-18. - Injury experience and worktime data by general work location at limestone operations in the United States, by State, 1970 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Frequency rates per million man-hours															
Alabama	-	-	-	-	-	-	1.12	0.54	30.43	172.44	51.73	13.19	21.49	15.54	21.22	18.27
Alaska	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arizona	-	-	-	-	-	-	-	-	-	-	-	26.77	-	26.77	-	16.75
Arkansas	-	-	-	-	-	-	-	-	43.33	14.70	29.14	21.45	-	24.30	44.85	32.92
California	-	-	-	5.52	-	3.17	-	1.39	94.98	100.16	96.23	33.14	-	57.09	12.39	31.99
Colorado	-	-	-	-	-	-	-	-	-	-	-	23.13	-	23.13	189.60	55.78
Connecticut	-	-	-	-	-	-	-	-	-	-	-	130.92	-	130.92	23.63	52.09
Florida	-	-	-	-	18.18	.78	.50	.65	-	-	-	20.65	27.27	20.93	26.94	23.56
Georgia	-	-	-	-	-	-	-	-	-	-	-	26.54	-	26.54	40.95	30.58
Hawaii	-	-	-	-	-	-	-	-	-	-	-	61.04	-	61.04	141.45	75.31
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Illinois	-	-	-	.80	-	.69	.44	.58	25.72	15.96	24.08	21.12	-	21.51	24.25	22.72
Indiana	-	-	-	.46	-	.45	-	.24	-	-	-	24.23	-	23.88	28.26	25.93
Iowa	-	-	-	-	-	-	-	-	-	136.63	25.20	20.67	-	20.84	24.95	22.49
Kansas	-	-	-	-	-	-	-	-	-	166.86	34.42	14.43	-	17.15	30.28	21.61
Kentucky	-	3.26	1.06	-	-	.34	-	.25	21.86	39.07	27.44	26.37	-	26.71	28.96	27.32
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	33.07	33.07	43.10	35.58
Maine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	40.04	-	37.76	25.41	30.50
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	51.97	36.87
Michigan	-	-	-	-	-	-	-	-	130.21	-	104.17	15.53	-	16.22	4.53	9.33
Minnesota	-	-	-	-	-	-	-	-	-	-	-	18.77	-	18.77	30.19	24.89
Mississippi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	2.34	-	1.87	-	-	.35	-	.25	9.37	9.33	9.36	20.68	-	18.56	33.02	22.79
Montana	-	-	-	-	-	-	-	-	-	-	-	26.70	-	26.70	308.64	59.08
Nebraska	-	-	-	-	-	-	-	-	31.88	-	25.28	19.69	-	20.06	85.57	37.10
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Jersey	-	-	-	-	-	-	-	-	-	-	-	58.53	-	58.53	25.67	35.69
New Mexico	-	-	-	-	-	-	-	-	-	-	-	9.64	-	9.64	31.45	14.76
New York	-	-	-	.83	-	.83	1.02	.92	-	-	-	32.46	-	32.46	17.42	25.72
North Carolina	-	-	-	-	-	-	-	-	-	-	-	17.92	-	17.92	42.86	22.93
Ohio	-	-	-	-	-	-	-	-	-	-	-	19.61	-	18.04	19.78	18.82
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	26.62	-	25.76	40.16	29.82
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pennsylvania	-	-	-	.37	-	.35	-	.20	-	17.00	6.18	21.11	-	20.27	22.76	21.33
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	59.13	-	59.13	22.99	33.11
South Carolina	-	-	-	-	-	-	11.84	4.55	-	-	-	7.40	-	7.40	-	4.55
South Dakota	-	-	-	-	-	-	-	-	-	-	-	73.03	-	73.03	-	22.01
Tennessee	-	-	-	1.55	-	1.48	.73	1.17	-	-	-	22.70	-	21.64	31.32	25.54
Texas	-	-	-	.44	-	.36	-	.23	-	-	-	26.31	60.25	32.44	26.32	30.29
Utah	-	-	-	-	-	-	-	-	-	-	-	24.19	-	20.19	-	15.61
Vermont	-	-	-	-	-	-	-	-	-	-	-	8.89	-	8.89	33.77	17.47
Virginia	-	-	-	.69	-	.68	-	.37	-	-	-	22.74	-	22.45	27.30	24.64
Washington	-	-	-	-	-	-	-	-	-	-	-	121.42	-	121.42	83.79	105.61
West Virginia	-	-	-	-	-	-	3.31	.97	4.28	99.06	26.29	44.61	-	36.98	29.77	34.87
Wisconsin	-	-	-	-	-	-	1.81	.53	-	-	-	36.12	-	36.12	37.93	36.65
Wyoming	-	86.81	14.08	-	-	10.49	-	8.50	-	-	-	41.13	-	10.49	-	8.50
Combined rate	.40	2.24	.88	.31	1.39	.40	.30	.36	16.68	39.18	22.58	23.36	40.88	23.93	25.87	24.71

TABLE A-18. - Injury experience and worktime data by general work location at limestone operations in the United States, by State, 1970 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Severity rates per million man-hours															
Alabama	-	-	-	-	-	-	6,701	3,224	213	54,665	8,380	473	752	816	653	738
Alaska	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arizona	-	-	-	-	-	-	-	-	-	-	-	455	-	455	-	285
Arkansas	-	-	-	-	-	-	-	-	491	59	277	270	-	273	912	541
California	-	-	-	33,144	-	19,029	-	8,346	580	300	513	795	-	660	178	389
Colorado	-	-	-	-	-	-	-	-	-	-	-	93	-	93	1,612	390
Connecticut	-	-	-	-	-	-	-	-	-	-	-	5,433	-	5,433	1,134	2,275
Florida	-	-	-	-	109,090	4,652	2,994	3,927	-	-	-	504	427	501	884	668
Georgia	-	-	-	-	-	-	-	-	-	-	-	1,691	-	1,691	1,795	1,720
Hawaii	-	-	-	-	-	-	-	-	-	-	-	12,544	-	12,544	2,546	10,770
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Illinois	-	-	-	4,783	-	4,163	2,646	3,495	871	16	728	1,102	-	1,053	569	840
Indiana	-	-	-	2,743	-	2,704	-	1,440	-	-	-	845	-	833	1,564	1,174
Iowa	-	-	-	-	-	-	-	-	-	205	38	691	-	668	705	683
Kansas	-	-	-	-	-	-	-	-	-	3,560	734	354	-	405	913	578
Kentucky	-	19,536	6,331	-	-	2,028	-	1,477	393	892	555	1,790	-	1,395	529	1,159
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	621	621	828	673
Maine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	810	-	764	871	827
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,247	885
Michigan	-	-	-	-	-	-	-	-	4,167	-	3,333	390	-	413	46	197
Minnesota	-	-	-	-	-	-	-	-	-	-	-	641	-	641	3,286	2,059
Mississippi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	14,050	-	11,231	-	-	2,102	-	1,487	197	28	163	670	-	575	6,145	2,205
Montana	-	-	-	-	-	-	-	-	-	-	-	894	-	894	5,144	1,382
Nebraska	-	-	-	-	-	-	-	-	64	-	51	188	-	179	1,535	532
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Jersey	-	-	-	-	-	-	-	-	-	-	-	878	-	878	308	482
New Mexico	-	-	-	-	-	-	-	-	-	-	-	444	-	444	1,258	635
New York	-	-	-	4,994	-	4,994	6,150	5,512	-	-	-	661	-	661	765	707
North Carolina	-	-	-	-	-	-	-	-	-	-	-	204	-	204	214	206
Ohio	-	-	-	-	-	-	-	-	-	-	-	552	-	508	871	671
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	617	-	597	818	659
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pennsylvania	-	-	-	2,222	-	2,097	-	1,207	-	34	12	624	-	589	884	714
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	828	-	828	92	298
South Carolina	-	-	-	-	-	-	71,061	27,320	-	-	-	37	-	37	-	23
South Dakota	-	-	-	-	-	-	-	-	-	-	-	1,534	-	1,534	-	462
Tennessee	-	-	-	9,286	-	8,853	4,371	7,046	-	-	-	4,388	-	4,183	1,615	3,148
Texas	-	-	-	2,631	-	2,139	-	1,387	-	-	-	887	1,805	1,052	4,281	2,187
Utah	-	-	-	-	-	-	-	-	-	-	-	1,605	-	1,339	-	1,036
Vermont	-	-	-	-	-	-	-	-	-	-	-	89	-	89	169	116
Virginia	-	-	-	4,134	-	4,082	-	2,240	-	-	-	3,789	-	3,741	634	2,339
Washington	-	-	-	-	-	-	-	-	-	-	-	2,084	-	2,084	866	1,572
West Virginia	-	-	-	-	-	-	19,846	5,811	13	2,703	638	665	-	653	1,244	826
Wisconsin	-	-	-	-	-	-	10,836	3,187	-	-	-	592	-	592	1,300	800
Wyoming	-	520,833	84,459	-	-	62,925	-	50,986	-	-	-	617	-	157	-	127
Combined rate	2,384	13,433	5,278	1,887	8,314	2,411	1,782	2,157	294	1,043	490	1,097	1,024	1,043	1,302	1,147

TABLE A-18. - Injury experience and worktime data by general work location at limestone operations in the United States, by State, 1970 - Continued

State	Active operations		Average men working daily								Average days active				
	Quarries	Mills	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines	Open quarries	Other surface mining	Total mining activities	Mills
			Underground	Surface	Total										
Alabama	43	37	17	3	20	406	26	452	389	841	252	238	321	243	256
Alaska	1	-	-	-	-	2	-	2	-	2	-	66	-	66	-
Arizona	3	2	-	-	-	25	-	25	16	41	-	192	-	192	173
Arkansas	33	17	30	27	57	113	-	170	114	284	289	246	-	261	272
California	22	19	47	12	59	95	6	160	173	333	264	220	199	235	287
Colorado	11	7	-	-	-	80	-	80	21	101	-	180	-	180	167
Connecticut	3	3	-	-	-	7	-	7	19	26	-	273	-	273	278
Florida	90	61	-	-	-	1,017	63	1,080	800	1,880	-	267	189	263	277
Georgia	9	9	-	-	-	146	-	146	63	209	-	275	-	275	252
Hawaii	7	3	-	-	-	32	-	32	6	38	-	252	-	252	274
Idaho	1	-	-	-	-	3	-	3	-	3	-	278	-	278	-
Illinois	237	144	130	27	157	1,165	-	1,322	993	2,315	273	252	-	254	266
Indiana	109	101	10	4	14	1,077	-	1,091	947	2,038	256	241	-	241	244
Iowa	270	118	31	7	38	985	-	1,023	669	1,692	232	237	-	237	239
Kansas	164	78	65	18	83	479	-	562	303	865	245	271	-	267	256
Kentucky	116	112	326	156	482	989	-	1,471	545	2,016	242	238	-	239	240
Louisiana	7	8	-	-	-	-	195	195	82	277	-	-	333	333	286
Maine	3	2	-	-	-	13	-	13	4	17	-	282	-	282	313
Maryland	17	17	10	2	12	302	7	321	428	749	157	241	329	239	272
Massachusetts	2	2	-	-	-	4	-	4	9	13	-	246	-	246	267
Michigan	26	24	4	1	5	599	-	604	865	1,469	240	247	-	247	249
Minnesota	69	48	-	-	-	228	-	228	218	446	-	186	-	186	231
Mississippi	1	1	-	-	-	10	-	10	2	12	-	260	-	260	260
Missouri	223	170	212	53	265	1,183	-	1,448	588	2,036	249	230	-	234	235
Montana	5	3	-	-	-	29	-	29	5	34	-	294	-	294	230
Nebraska	35	22	11	3	14	243	-	257	87	344	282	255	-	257	265
Nevada	3	2	-	-	-	14	-	14	5	19	-	139	-	139	155
New Jersey	2	4	-	-	-	7	-	7	17	24	-	284	-	284	256
New Mexico	18	17	-	-	-	59	-	59	16	75	-	216	-	216	235
New York	56	57	-	-	-	667	-	667	515	1,182	-	212	-	212	221
North Carolina	9	9	-	-	-	135	-	135	34	169	-	258	-	258	257
Ohio	125	117	100	7	107	930	-	1,037	837	1,874	208	262	-	257	264
Oklahoma	78	54	7	7	14	555	-	569	212	781	308	253	-	255	262
Oregon	3	1	3	1	4	2	-	6	9	15	30	68	-	43	80
Pennsylvania	136	123	57	24	81	1,298	-	1,379	966	2,345	224	243	-	242	248
Rhode Island	1	1	-	-	-	7	-	7	18	25	-	302	-	302	302
South Carolina	3	3	-	-	-	52	-	52	33	85	-	282	-	282	267
South Dakota	5	5	-	-	-	18	-	18	38	56	-	177	-	177	186
Tennessee	112	102	24	18	42	936	-	978	645	1,623	247	233	-	233	235
Texas	134	115	3	1	4	913	138	1,055	617	1,672	244	270	339	279	280
Utah	9	8	5	5	10	69	-	79	25	104	307	224	-	234	220
Vermont	5	4	-	-	-	53	-	53	31	84	-	256	-	256	217
Virginia	63	61	7	2	9	699	-	708	559	1,267	260	246	-	247	255
Washington	14	7	-	-	-	33	-	33	27	60	-	187	-	187	166
West Virginia	28	22	112	33	145	217	-	362	154	516	258	235	-	244	241
Wisconsin	355	129	-	-	-	791	-	791	324	1,115	-	192	-	192	206
Wyoming	5	4	31	6	37	22	-	59	14	73	240	138	-	202	199
Total or average	2,671	1,853	1,242	417	1,659	16,709	435	18,803	12,442	31,245	247	242	311	244	251

TABLE A-18. - Injury experience and worktime data by general work location at limestone operations in the United States, by State, 1970 - Continued

State	Man-days worked								Man-hours worked							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
Alabama	4,284	756	5,040	96,473	8,334	109,847	99,712	209,559	32,866	5,799	38,665	833,684	93,070	965,419	895,394	1,860,813
Alaska	-	-	-	132	-	132	-	132	-	-	-	1,060	-	1,060	-	1,060
Arizona	-	-	-	4,808	-	4,808	2,764	7,572	-	-	-	37,356	-	37,356	22,356	59,712
Arkansas	8,550	7,908	16,458	27,837	-	44,295	31,050	75,345	69,244	68,009	137,253	233,084	-	370,337	267,583	637,920
California	11,844	3,744	15,588	20,862	1,196	37,646	49,722	87,368	94,752	29,952	124,704	181,030	9,568	315,302	403,636	718,938
Colorado	-	-	-	14,391	-	14,391	3,508	17,899	-	-	-	129,707	-	129,707	31,645	161,352
Connecticut	-	-	-	1,909	-	1,909	5,288	7,197	-	-	-	15,276	-	15,276	42,313	57,589
Florida	-	-	-	271,854	11,902	283,756	221,918	505,674	-	-	-	2,469,727	110,001	2,579,728	2,004,117	4,583,845
Georgia	-	-	-	40,145	-	40,145	15,878	56,023	-	-	-	376,744	-	376,744	146,532	523,276
Hawaii	-	-	-	8,073	-	8,073	1,645	9,718	-	-	-	65,530	-	65,530	14,139	79,669
Idaho	-	-	-	835	-	835	-	835	-	-	-	7,101	-	7,101	-	7,101
Illinois	35,664	7,199	42,863	293,132	-	335,995	263,761	599,756	311,055	62,637	373,692	2,509,094	-	2,882,786	2,267,953	5,150,739
Indiana	2,552	1,032	3,584	259,380	-	262,964	230,788	493,752	22,910	8,881	31,791	2,187,328	-	2,219,119	1,946,135	4,165,254
Iowa	7,113	1,711	8,824	233,873	-	242,697	159,590	402,287	64,738	14,638	79,376	2,128,256	-	2,207,632	1,483,160	3,690,792
Kansas	16,120	4,248	20,368	129,886	-	150,254	77,667	227,921	138,340	35,959	174,299	1,108,716	-	1,283,015	660,583	1,943,598
Kentucky	78,575	37,828	116,403	235,196	-	351,599	130,879	482,478	640,549	307,132	947,681	2,010,198	-	2,957,879	1,104,967	4,062,846
Louisiana	-	-	-	-	64,938	64,938	23,477	88,415	-	-	-	-	695,481	695,481	232,022	927,503
Maine	-	-	-	3,669	-	3,669	1,252	4,921	-	-	-	29,797	-	29,797	10,461	40,258
Maryland	1,565	324	1,889	72,667	2,305	76,861	116,491	193,352	14,084	2,916	17,000	624,387	20,748	662,135	944,602	1,606,737
Massachusetts	-	-	-	985	-	985	2,406	3,391	-	-	-	7,878	-	7,878	19,243	27,121
Michigan	960	240	1,200	147,713	-	148,913	215,607	364,520	7,680	1,920	9,600	1,223,708	-	1,233,308	1,767,823	3,001,131
Minnesota	-	-	-	42,417	-	42,417	50,345	92,762	-	-	-	372,843	-	372,843	430,651	803,494
Mississippi	-	-	-	2,600	-	2,600	520	3,120	-	-	-	23,400	-	23,400	4,680	28,080
Missouri	52,865	13,184	66,049	272,390	-	338,439	138,189	476,628	427,034	107,199	534,233	2,320,819	-	2,855,052	1,181,254	4,036,306
Montana	-	-	-	8,515	-	8,515	1,150	9,665	-	-	-	74,917	-	74,917	9,720	84,637
Nebraska	3,137	818	3,955	61,970	-	65,925	23,045	88,970	31,372	8,180	39,552	558,733	-	598,285	210,359	808,644
Nevada	-	-	-	1,951	-	1,951	774	2,725	-	-	-	15,612	-	15,612	6,190	21,802
New Jersey	-	-	-	1,990	-	1,990	4,351	6,341	-	-	-	17,084	-	17,084	38,949	56,033
New Mexico	-	-	-	12,745	-	12,745	3,758	16,503	-	-	-	103,703	-	103,703	31,800	135,503
New York	-	-	-	141,169	-	141,169	113,896	255,065	-	-	-	1,201,382	-	1,201,382	975,680	2,177,062
North Carolina	-	-	-	34,870	-	34,870	8,750	43,620	-	-	-	278,963	-	278,963	69,997	348,960
Ohio	20,200	2,044	22,244	244,104	-	266,348	221,257	487,605	161,600	16,352	177,952	2,039,816	-	2,217,768	1,819,624	4,037,392
Oklahoma	2,156	2,156	4,312	140,584	-	144,896	55,477	200,373	19,404	19,404	38,808	1,164,634	-	1,203,442	473,116	1,676,558
Oregon	90	30	120	136	-	256	720	976	720	240	960	1,089	-	2,049	5,760	7,809
Pennsylvania	11,694	6,447	18,141	315,300	-	333,441	239,892	573,333	102,929	58,820	161,749	2,700,007	-	2,861,756	2,108,707	4,970,463
Rhode Island	-	-	-	2,114	-	2,114	5,436	7,550	-	-	-	16,912	-	16,912	43,488	60,400
South Carolina	-	-	-	14,642	-	14,642	8,802	23,444	-	-	-	135,187	-	135,187	84,435	219,622
South Dakota	-	-	-	3,188	-	3,188	7,056	10,244	-	-	-	27,385	-	27,385	63,500	90,885
Tennessee	5,770	4,604	10,374	217,803	-	228,177	151,654	379,831	50,707	44,223	94,930	1,938,346	-	2,033,276	1,372,771	3,406,047
Texas	732	244	976	246,475	46,819	294,270	172,963	467,233	7,320	2,440	9,760	2,280,547	514,549	2,804,856	1,519,595	4,324,451
Utah	1,535	1,535	3,070	15,422	-	18,492	5,507	23,999	12,280	12,280	24,560	124,003	-	148,563	43,577	192,140
Vermont	-	-	-	13,582	-	13,582	6,716	20,298	-	-	-	112,528	-	112,528	59,216	171,744
Virginia	1,820	520	2,340	172,258	-	174,598	142,620	317,218	14,560	4,160	18,720	1,451,236	-	1,469,956	1,208,693	2,678,649
Washington	-	-	-	6,185	-	6,185	4,476	10,661	-	-	-	49,417	-	49,417	35,803	85,220
West Virginia	28,715	8,688	37,403	51,086	-	88,489	37,134	125,623	233,640	70,665	304,305	425,877	-	730,182	302,331	1,032,513
Wisconsin	-	-	-	151,857	-	151,857	66,753	218,610	-	-	-	1,328,812	-	1,328,812	553,724	1,882,536
Wyoming	7,440	1,440	8,880	3,039	-	11,919	2,791	14,710	59,520	11,520	71,040	24,312	-	95,352	22,328	117,680
Total	303,381	106,700	410,081	4,042,212	135,494	4,587,787	3,127,435	7,715,222	2,517,304	893,326	3,410,630	34,967,225	1,443,417	39,821,272	26,940,612	66,761,884

TABLE A-19. - Injury experience and worktime data by general work location at limestone (chief product, lime) operations in the United States, by State, 1970

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Injuries															
Alabama	-	-	-	-	-	-	-	-	-	-	-	1	-	1	6	7
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Arkansas	-	-	-	-	-	-	-	-	-	-	-	2	-	2	9	11
California	-	-	-	-	-	-	-	-	1	-	1	2	-	3	7	10
Colorado	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Connecticut	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Florida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Georgia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hawaii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Illinois	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	21
Indiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iowa	-	-	-	-	-	-	-	-	4	-	4	-	-	4	1	5
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	10
Maryland	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	2
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	2	-	2	6	8
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	9
Minnesota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Missouri	-	-	-	-	-	-	-	-	1	-	1	4	-	5	33	38
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
New Jersey	-	-	-	-	-	-	-	-	-	-	-	6	-	6	9	15
New Mexico	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New York	-	-	-	1	-	1	-	1	-	-	-	1	-	1	-	1
Ohio	-	-	-	-	-	-	-	-	1	-	1	37	-	38	67	105
Oklahoma	-	-	-	-	-	-	-	-	1	-	1	-	-	1	2	3
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Pennsylvania	-	-	-	-	-	-	-	-	11	-	11	5	-	16	28	44
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tennessee	-	-	-	-	-	-	-	-	-	-	-	4	-	4	8	12
Texas	-	-	-	-	-	-	-	-	-	-	-	10	-	10	28	38
Utah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vermont	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Virginia	-	-	-	-	-	-	-	-	4	-	4	1	-	5	5	10
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
West Virginia	-	-	-	-	-	-	-	-	-	-	-	3	-	3	2	5
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	1	-	1	7	8
Total	-	-	-	1	-	1	-	1	23	-	23	80	-	103	269	372

TABLE A-19. - Injury experience and worktime data by general work location at limestone (chief product, lime) operations in the United States, by State, 1970 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Frequency rates per million man-hours															
Alabama	-	-	-	-	-	-	-	-	-	-	-	4.70	-	3.78	11.38	8.84
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.19	4.38
Arkansas	-	-	-	-	-	-	-	-	-	-	-	79.14	-	79.14	37.86	41.83
California	-	-	-	-	-	-	-	-	45.63	-	27.91	16.42	-	19.03	20.10	19.76
Colorado	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Connecticut	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Florida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.34	11.34
Georgia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hawaii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	58.85	57.23
Illinois	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.08	35.95
Indiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iowa	-	-	-	-	-	-	-	-	84.85	-	64.37	-	-	64.37	9.26	29.39
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43.68	43.68
Maryland	-	-	-	-	-	-	-	-	-	-	-	26.09	-	26.09	14.58	18.71
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	40.37	-	40.37	15.59	18.41
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22.80	22.80
Minnesota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27.80	27.80
Missouri	-	-	-	-	-	-	-	-	4.07	-	3.26	44.24	-	12.59	20.87	19.21
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15.19	10.09
New Jersey	-	-	-	-	-	-	-	-	-	-	-	145.03	-	145.03	54.20	72.32
New Mexico	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New York	-	-	-	4.22	-	4.22	-	2.05	-	-	-	4.22	-	4.22	-	2.05
Ohio	-	-	-	-	-	-	-	-	46.93	-	38.37	70.15	-	68.65	18.48	25.13
Oklahoma	-	-	-	-	-	-	-	-	17.98	-	14.40	-	-	14.40	21.31	18.37
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.66	16.31
Pennsylvania	-	-	-	-	-	-	-	-	24.57	-	22.27	7.80	-	14.10	12.91	13.32
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tennessee	-	-	-	-	-	-	-	-	-	-	-	51.88	-	51.88	54.52	53.61
Texas	-	-	-	-	-	-	-	-	-	-	-	30.96	-	30.96	35.23	33.99
Utah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vermont	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45.66	36.71
Virginia	-	-	-	-	-	-	-	-	14.15	-	11.65	10.38	-	11.38	5.85	7.73
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	34.71	34.71
West Virginia	-	-	-	-	-	-	-	-	-	-	-	62.60	-	62.60	7.96	16.72
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	27.56	-	27.56	25.29	25.55
Combined rate	-	-	-	.35	-	.23	-	.05	19.38	-	16.02	27.89	-	23.93	19.24	20.34

TABLE A-19. - Injury experience and worktime data by general work location at limestone (chief product, lime) operations in the United States, by State, 1970 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Severity rates per million man-hours															
Alabama	-	-	-	-	-	-	-	-	-	-	-	28	-	23	155	111
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37	26
Arkansas	-	-	-	-	-	-	-	-	-	-	-	1,860	-	1,860	492	624
California	-	-	-	-	-	-	-	-	456	-	279	673	-	584	761	706
Colorado	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Connecticut	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Florida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	23
Georgia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hawaii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,765	1,717
Illinois	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,053	969
Indiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iowa	-	-	-	-	-	-	-	-	1,124	-	853	-	-	853	315	511
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,473	4,473
Maryland	-	-	-	-	-	-	-	-	-	-	-	183	-	183	744	542
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	1,110	-	1,110	223	325
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	426	426
Minnesota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	111	111
Missouri	-	-	-	-	-	-	-	-	187	-	150	818	-	302	799	700
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	410	272
New Jersey	-	-	-	-	-	-	-	-	-	-	-	4,762	-	4,762	1,361	2,039
New Mexico	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New York	-	-	-	25,333	-	25,333	-	12,302	-	-	-	317	-	317	-	154
Ohio	-	-	-	-	-	-	-	-	422	-	345	1,519	-	1,463	482	612
Oklahoma	-	-	-	-	-	-	-	-	1,097	-	879	-	-	879	405	606
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	117	114
Pennsylvania	-	-	-	-	-	-	-	-	322	-	291	527	-	425	344	372
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tennessee	-	-	-	-	-	-	-	-	-	-	-	726	-	726	1,308	1,108
Texas	-	-	-	-	-	-	-	-	-	-	-	916	-	916	639	719
Utah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vermont	-	-	-	-	-	-	-	-	-	-	-	-	-	-	274	220
Virginia	-	-	-	-	-	-	-	-	559	-	460	467	-	462	76	207
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7,047	7,047
West Virginia	-	-	-	-	-	-	-	-	-	-	-	2,003	-	2,003	2,417	2,351
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	386	-	386	336	342
Combined rate	-	-	-	2,091	-	1,394	-	328	405	-	335	763	-	620	600	605

TABLE A-19. - Injury experience and worktime data by general work location at limestone (chief product, lime) operations in the United States, by State, 1970 - Continued

State	Active operations		Average men working daily							Average days active				
	Quarries	Mills	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines	Open quarries	Other surface mining	Total mining activities	Mills
			Underground	Surface	Total										
Alabama	6	5	18	4	22	98	-	120	190	310	293	271	-	275	347
Arizona	5	5	-	-	-	29	-	29	66	95	-	287	-	287	306
Arkansas	1	2	-	-	-	9	-	9	95	104	-	312	-	312	313
California	5	12	22	8	30	48	-	78	150	228	149	318	-	253	290
Colorado	2	2	-	-	-	36	-	36	21	57	-	126	-	126	188
Connecticut	1	1	-	-	-	6	-	6	32	38	-	275	-	275	282
Florida	-	2	-	-	-	-	-	-	29	29	-	-	-	-	365
Georgia	1	1	-	-	-	1	-	1	8	9	-	40	-	40	40
Hawaii	1	2	-	-	-	1	-	1	16	17	-	60	-	60	148
Illinois	2	5	11	8	19	-	-	19	192	211	262	-	-	262	349
Indiana	-	1	-	-	-	-	-	-	28	28	-	-	-	-	365
Iowa	1	2	21	5	26	-	-	26	40	66	286	-	-	286	365
Louisiana	-	3	-	-	-	-	-	-	84	84	-	-	-	-	341
Maryland	2	2	-	-	-	16	-	16	25	41	-	284	-	284	319
Massachusetts	2	2	-	-	-	20	-	20	153	173	-	310	-	310	314
Michigan	-	8	-	-	-	-	-	-	138	138	-	-	-	-	345
Minnesota	-	1	-	-	-	-	-	-	13	13	-	-	-	-	346
Missouri	4	7	88	22	110	45	-	155	630	785	348	251	-	320	314
Montana	1	1	-	-	-	13	-	13	3	16	-	244	-	244	244
Nevada	3	4	-	-	-	33	-	33	47	80	-	252	-	252	350
New Jersey	1	1	-	-	-	15	-	15	62	77	-	276	-	276	268
New Mexico	1	1	-	-	-	3	-	3	5	8	-	327	-	327	365
New York	1	5	-	-	-	113	-	113	107	220	-	262	-	262	293
Ohio	13	28	13	3	16	214	-	230	1,339	1,569	204	276	-	271	329
Oklahoma	1	2	24	6	30	-	-	30	45	75	289	-	-	289	261
Oregon	1	3	-	-	-	1	-	1	24	25	-	159	-	159	313
Pennsylvania	17	15	219	24	243	305	-	548	882	1,430	254	258	-	256	306
South Dakota	1	1	-	-	-	3	-	3	2	5	-	300	-	300	300
Tennessee	3	3	-	-	-	30	-	30	59	89	-	306	-	306	289
Texas	7	7	-	-	-	111	-	111	304	415	-	307	-	307	334
Utah	5	4	-	-	-	37	-	37	62	99	-	248	-	248	303
Vermont	1	1	-	-	-	3	-	3	13	16	-	222	-	222	211
Virginia	7	7	125	22	147	39	-	186	354	540	301	261	-	293	323
Washington	-	1	-	-	-	-	-	-	30	30	-	-	-	-	240
West Virginia	3	3	-	-	-	28	-	28	118	146	-	214	-	214	266
Wisconsin	4	6	-	-	-	15	-	15	114	129	-	289	-	289	297
Total or average	103	156	541	102	643	1,272	-	1,915	5,480	7,395	279	267	-	271	317

TABLE A-19. - Injury experience and worktime data by general work location at limestone (chief product, lime) operations in the United States, by State, 1970 - Continued

State	Man-days worked								Man-hours worked							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
Alabama	5,261	1,178	6,439	26,597	-	33,036	65,929	98,965	42,088	9,424	51,512	212,783	-	264,295	527,426	791,721
Arizona	-	-	-	8,316	-	8,316	20,203	28,519	-	-	-	66,525	-	66,525	161,630	228,155
Arkansas	-	-	-	2,808	-	2,808	29,715	32,523	-	-	-	25,272	-	25,272	237,720	262,992
California	2,739	1,739	4,478	15,258	-	19,736	43,537	63,273	21,917	13,914	35,831	121,815	-	157,646	348,314	505,960
Colorado	-	-	-	4,529	-	4,529	3,951	8,480	-	-	-	36,739	-	36,739	31,756	68,495
Connecticut	-	-	-	1,650	-	1,650	9,029	10,679	-	-	-	13,203	-	13,203	72,236	85,439
Florida	-	-	-	-	-	-	11,019	11,019	-	-	-	-	-	-	88,149	88,149
Georgia	-	-	-	40	-	40	320	360	-	-	-	360	-	360	2,880	3,240
Hawaii	-	-	-	60	-	60	2,367	2,427	-	-	-	480	-	480	16,993	17,473
Illinois	2,662	2,319	4,981	-	-	4,981	66,926	71,907	23,292	23,427	46,719	-	-	46,719	537,421	584,140
Indiana	-	-	-	-	-	-	10,245	10,245	-	-	-	-	-	-	81,964	81,964
Iowa	5,893	1,550	7,443	-	-	7,443	14,600	22,043	47,143	15,001	62,144	-	-	62,144	107,976	170,120
Louisiana	-	-	-	-	-	-	28,614	28,614	-	-	-	-	-	-	228,917	228,917
Maryland	-	-	-	4,552	-	4,552	7,979	12,531	-	-	-	38,332	-	38,332	68,586	106,918
Massachusetts	-	-	-	6,193	-	6,193	48,118	54,311	-	-	-	49,542	-	49,542	384,942	434,484
Michigan	-	-	-	-	-	-	47,592	47,592	-	-	-	-	-	-	394,753	394,753
Minnesota	-	-	-	-	-	-	4,497	4,497	-	-	-	-	-	-	35,972	35,972
Missouri	30,685	7,638	38,323	11,302	-	49,625	197,657	247,282	245,480	61,104	306,584	90,418	-	397,002	1,581,270	1,978,272
Montana	-	-	-	3,172	-	3,172	732	3,904	-	-	-	25,376	-	25,376	5,856	31,232
Nevada	-	-	-	8,328	-	8,328	16,453	24,781	-	-	-	66,631	-	66,631	131,637	198,268
New Jersey	-	-	-	4,137	-	4,137	16,605	20,742	-	-	-	41,372	-	41,372	166,045	207,417
New Mexico	-	-	-	980	-	980	1,959	2,939	-	-	-	7,839	-	7,839	15,677	23,516
New York	-	-	-	29,606	-	29,606	31,362	60,968	-	-	-	236,848	-	236,848	250,896	487,744
Ohio	2,664	594	3,258	58,968	-	62,226	441,062	503,288	21,310	4,752	26,062	527,439	-	553,501	3,625,333	4,178,834
Oklahoma	6,951	1,728	8,679	-	-	8,679	11,730	20,409	55,610	13,824	69,434	-	-	69,434	93,841	163,275
Oregon	-	-	-	159	-	159	7,505	7,664	-	-	-	1,270	-	1,270	60,042	61,312
Pennsylvania	55,955	5,798	61,753	78,673	-	140,426	269,488	409,914	447,645	46,384	494,029	641,003	-	1,135,032	2,168,501	3,303,533
South Dakota	-	-	-	900	-	900	600	1,500	-	-	-	6,300	-	6,300	4,200	10,500
Tennessee	-	-	-	9,172	-	9,172	17,053	26,225	-	-	-	77,095	-	77,095	146,738	223,833
Texas	-	-	-	34,025	-	34,025	101,412	135,437	-	-	-	322,991	-	322,991	794,852	1,117,843
Utah	-	-	-	9,158	-	9,158	18,768	27,926	-	-	-	73,269	-	73,269	150,157	223,426
Vermont	-	-	-	667	-	667	2,737	3,404	-	-	-	5,343	-	5,343	21,901	27,244
Virginia	37,469	6,814	44,283	10,181	-	54,464	114,209	168,673	282,596	60,632	343,228	96,326	-	439,554	854,274	1,293,828
Washington	-	-	-	-	-	-	7,215	7,215	-	-	-	-	-	-	57,616	57,616
West Virginia	-	-	-	5,991	-	5,991	31,390	37,381	-	-	-	47,927	-	47,927	251,117	299,044
Wisconsin	-	-	-	4,330	-	4,330	33,870	38,200	-	-	-	36,286	-	36,286	276,770	313,056
Total	150,279	29,358	179,637	339,752	-	519,389	1,736,448	2,255,837	1,187,081	248,462	1,435,543	2,868,784	-	4,304,327	13,984,358	18,288,685

TABLE A-20. - Injury experience and worktime data by general work location at marble operations in the United States, by State, 1970

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Injuries															
Alabama	-	-	-	-	-	-	-	-	-	-	-	2	-	2	4	6
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Arkansas	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
California	-	-	-	-	-	-	-	-	-	-	-	1	-	1	3	4
Colorado	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Georgia	-	-	-	-	-	-	-	-	3	-	3	6	-	9	36	45
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Missouri	-	-	-	-	-	-	-	-	2	-	2	4	-	6	18	24
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Jersey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
New York	-	-	-	-	-	-	-	-	-	-	-	2	-	2	2	4
North Carolina	-	-	-	-	-	-	-	-	-	-	-	4	-	4	6	10
Tennessee	-	-	-	-	-	-	-	-	-	-	-	2	-	2	8	10
Texas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	10
Vermont	-	-	-	-	-	-	-	-	7	-	7	-	-	7	12	19
Virginia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Total	-	-	-	-	-	-	-	-	12	-	12	22	-	34	106	140
	Frequency rates per million man-hours															
Alabama	-	-	-	-	-	-	-	-	-	-	-	8.64	-	8.64	7.02	7.49
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52.88	31.76
Arkansas	-	-	-	-	-	-	-	-	-	-	-	42.28	-	42.28	-	28.19
California	-	-	-	-	-	-	-	-	-	-	-	46.37	-	46.37	120.97	86.27
Colorado	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Georgia	-	-	-	-	-	-	-	-	24.87	-	20.24	26.47	-	24.01	34.40	31.66
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	91.58	59.27
Missouri	-	-	-	-	-	-	-	-	33.34	-	26.58	62.73	-	43.16	36.05	37.60
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	144.14	81.74
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Jersey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	94.70	71.02
New York	-	-	-	-	-	-	-	-	-	-	-	80.54	-	50.88	210.35	81.93
North Carolina	-	-	-	-	-	-	-	-	-	-	-	51.46	-	51.46	47.95	49.29
Tennessee	-	-	-	-	-	-	-	-	-	-	-	18.03	-	18.03	30.38	26.72
Texas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	188.43	113.83
Vermont	-	-	-	-	-	-	-	-	29.37	-	23.62	-	-	23.05	19.56	20.71
Virginia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.81	63.00
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42.49	27.31
Combined rate	-	-	-	-	-	-	-	-	26.99	-	21.84	25.11	-	23.85	31.99	29.54

TABLE A-20. - Injury experience and worktime data by general work location at marble operations in the United States, by State, 1970 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Severity rates per million man-hours															
Alabama	-	-	-	-	-	-	-	-	-	-	-	194	-	194	137	153
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	53	32
Arkansas	-	-	-	-	-	-	-	-	-	-	-	4,863	-	4,863	-	3,242
California	-	-	-	-	-	-	-	-	-	-	-	139	-	139	645	410
Colorado	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Georgia	-	-	-	-	-	-	-	-	473	-	385	838	-	659	935	862
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,015	1,304
Missouri	-	-	-	-	-	-	-	-	267	-	213	282	-	245	1,466	1,200
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	144	82
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Jersey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,178	1,634
New York	-	-	-	-	-	-	-	-	-	-	-	121,617	-	76,821	2,629	62,372
North Carolina	-	-	-	-	-	-	-	-	-	-	-	900	-	900	2,254	1,735
Tennessee	-	-	-	-	-	-	-	-	-	-	-	586	-	586	1,193	1,013
Texas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,073	1,252
Vermont	-	-	-	-	-	-	-	-	390	-	314	-	-	306	896	701
Virginia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,815	1,134
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	127	82
Combined rate	-	-	-	-	-	-	-	-	373	-	302	4,024	-	2,590	952	1,444

State	Active operations		Average men working daily								Average days active				
	Quarries	Mills	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines	Open quarries	Other surface mining	Total mining activities	Mills
			Underground	Surface	Total										
Alabama	4	3	-	-	-	108	-	108	261	369	-	263	-	263	271
Arizona	3	2	-	-	-	7	-	7	8	15	-	203	-	203	276
Arkansas	1	1	-	-	-	12	-	12	6	18	-	246	-	246	246
California	11	2	-	-	-	14	-	14	12	26	-	192	-	192	258
Colorado	2	-	-	-	-	4	-	4	-	4	-	182	-	182	-
Georgia	11	16	48	11	59	133	-	192	488	680	262	213	-	228	241
Idaho	1	-	-	-	-	1	-	1	-	1	-	220	-	220	-
Maryland	1	1	2	1	3	-	-	3	5	8	248	-	-	248	273
Missouri	9	4	24	7	31	29	-	60	256	316	303	275	-	290	244
Montana	3	3	-	-	-	6	-	6	8	14	-	221	-	221	217
Nevada	1	-	-	-	-	1	-	1	-	1	-	1	-	1	-
New Jersey	1	1	-	-	-	2	-	2	6	8	-	220	-	220	220
New York	4	3	6	1	7	13	-	20	5	25	259	239	-	246	238
North Carolina	2	2	-	-	-	41	-	41	66	107	-	237	-	237	237
Tennessee	8	4	-	-	-	64	-	64	131	195	-	203	-	203	246
Texas	27	3	4	-	4	14	-	18	27	45	260	228	-	235	246
Vermont	6	2	111	27	138	15	-	153	275	428	259	61	-	240	279
Virginia	1	1	-	-	-	3	-	3	5	8	-	248	-	248	248
Washington	2	1	-	-	-	7	-	7	6	13	-	193	-	193	189
Wyoming	1	1	-	-	-	5	-	5	9	14	-	288	-	288	288
Total or average	99	50	195	47	242	479	-	721	1,574	2,295	265	225	-	239	254

TABLE A-20. - Injury experience and worktime data by general work location at marble operations in the United States, by State, 1970 - Continued

State	Man-days worked								Man-hours worked							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
Alabama	-	-	-	28,450	-	28,450	70,758	99,208	-	-	-	231,588	-	231,588	570,014	801,602
Arizona	-	-	-	1,418	-	1,418	2,208	3,626	-	-	-	12,572	-	12,572	18,912	31,484
Arkansas	-	-	-	2,956	-	2,956	1,478	4,434	-	-	-	23,650	-	23,650	11,825	35,475
California	-	-	-	2,695	-	2,695	3,100	5,795	-	-	-	21,566	-	21,566	24,800	46,366
Colorado	-	-	-	730	-	730	-	730	-	-	-	4,365	-	4,365	-	4,365
Georgia	12,559	2,879	15,438	28,325	-	43,763	117,479	161,242	120,618	27,577	148,195	226,705	-	374,900	1,046,494	1,421,394
Idaho	-	-	-	220	-	220	-	220	-	-	-	1,808	-	1,808	-	1,808
Maryland	496	248	744	-	-	744	1,365	2,109	3,968	1,984	5,952	-	-	5,952	10,920	16,872
Missouri	7,499	1,906	9,405	7,971	-	17,376	62,419	79,795	59,992	15,245	75,237	63,766	-	139,003	499,353	638,356
Montana	-	-	-	1,324	-	1,324	1,734	3,058	-	-	-	10,594	-	10,594	13,875	24,469
Nevada	-	-	-	1	-	1	-	1	-	-	-	8	-	8	-	8
New Jersey	-	-	-	440	-	440	1,320	1,760	-	-	-	3,520	-	3,520	10,560	14,080
New York	1,554	256	1,810	3,104	-	4,914	1,189	6,103	12,432	2,048	14,480	24,832	-	39,312	9,508	48,820
North Carolina	-	-	-	9,717	-	9,717	15,642	25,359	-	-	-	77,736	-	77,736	125,136	202,872
Tennessee	-	-	-	13,014	-	13,014	32,204	45,218	-	-	-	110,929	-	110,929	263,293	374,222
Texas	1,040	-	1,040	3,197	-	4,237	6,630	10,867	9,360	-	9,360	25,420	-	34,780	53,070	87,850
Vermont	28,744	6,992	35,736	915	-	36,651	76,695	113,346	238,319	58,028	296,347	7,320	-	303,667	613,560	917,227
Virginia	-	-	-	744	-	744	1,240	1,984	-	-	-	5,952	-	5,952	9,920	15,872
Washington	-	-	-	1,348	-	1,348	1,133	2,481	-	-	-	10,757	-	10,757	9,063	19,820
Wyoming	-	-	-	1,440	-	1,440	2,592	4,032	-	-	-	13,075	-	13,075	23,535	36,610
Total	51,892	12,281	64,173	108,009	-	172,182	399,186	571.368	444,689	104,882	549,571	876,163	-	1,425,734	3,313,838	4,739,572

TABLE A-21. - Injury experience and worktime data by general work location at sandstone operations in the United States, by State, 1970

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Injuries															
Alabama	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arizona	-	-	-	-	-	-	-	-	-	-	-	4	-	4	-	4
Arkansas	-	-	-	-	-	-	-	-	-	-	-	10	-	10	9	19
California	-	-	-	-	-	-	-	-	-	-	-	12	-	12	5	17
Colorado	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-	2
Connecticut	-	-	-	-	-	-	-	-	-	-	-	4	-	4	4	8
Georgia	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-	2
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Illinois	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25
Indiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iowa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Kansas	-	-	-	-	-	-	-	-	-	-	-	2	-	2	3	5
Kentucky	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	2
Massachusetts	-	-	-	-	-	-	1	1	-	-	-	4	-	4	9	13
Michigan	-	-	-	-	-	-	-	-	-	-	-	1	-	1	2	3
Minnesota	-	-	-	-	-	-	-	-	-	-	-	4	-	4	7	11
Missouri	-	-	-	-	-	-	-	-	-	-	-	2	-	2	4	6
Montana	-	-	-	-	-	-	-	-	-	-	-	2	-	2	1	3
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Jersey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Mexico	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
New York	-	-	-	-	-	-	-	-	-	-	-	2	-	2	8	10
North Carolina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ohio	-	-	-	-	-	-	-	-	-	-	-	17	-	17	22	39
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	1	-	1	3	4
Oregon	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	2
Pennsylvania	-	-	-	2	-	2	-	2	4	3	7	28	-	35	25	60
South Dakota	-	-	-	1	-	1	-	1	-	-	-	3	-	3	-	3
Tennessee	-	-	-	-	-	-	-	-	-	-	-	11	-	11	8	19
Texas	-	-	-	-	-	-	-	-	-	-	-	5	-	5	4	9
Utah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Virginia	-	-	-	-	-	-	-	-	-	-	-	4	-	4	4	8
Washington	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
West Virginia	-	-	-	-	-	-	-	-	-	-	-	2	-	2	7	9
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	1	-	1	4	5
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	3	-	3	1	4	4	3	7	127	-	134	162	296

TABLE A-21. - Injury experience and worktime data by general work location at sandstone operations in the United States, by State, 1970 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Frequency rates per million man-hours															
Alabama	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arizona	-	-	-	-	-	-	-	-	-	-	-	38.16	-	38.16	-	31.43
Arkansas	-	-	-	-	-	-	-	-	-	-	-	25.64	-	24.89	22.99	23.95
California	-	-	-	-	-	-	-	-	-	-	-	52.06	-	52.06	29.87	42.72
Colorado	-	-	-	-	-	-	-	-	-	-	-	14.25	-	14.23	-	12.66
Connecticut	-	-	-	-	-	-	-	-	-	-	-	174.43	-	174.43	246.06	204.14
Georgia	-	-	-	-	-	-	-	-	-	-	-	18.03	-	18.03	-	14.22
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Illinois	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28.36	24.55
Indiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iowa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	203.21	18.53
Kansas	-	-	-	-	-	-	-	-	-	-	-	40.85	-	40.85	70.00	54.46
Kentucky	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	15.17	-	15.17	64.57	24.57
Massachusetts	-	-	-	-	-	-	8.54	6.72	-	-	-	126.26	-	126.26	76.90	87.41
Michigan	-	-	-	-	-	-	-	-	-	-	-	17.01	-	17.01	22.33	20.22
Minnesota	-	-	-	-	-	-	-	-	-	-	-	102.87	-	102.87	92.40	95.95
Missouri	-	-	-	-	-	-	-	-	-	-	-	89.63	-	39.80	44.53	42.83
Montana	-	-	-	-	-	-	-	-	-	-	-	20.97	-	20.97	49.73	25.97
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	132.51	60.35
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Jersey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Mexico	-	-	-	-	-	-	-	-	-	-	-	31.71	-	31.71	-	25.89
New York	-	-	-	-	-	-	-	-	-	-	-	21.97	-	21.97	54.10	41.86
North Carolina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ohio	-	-	-	-	-	-	-	-	-	-	-	35.82	-	35.82	24.45	28.37
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	15.12	-	15.12	61.09	34.71
Oregon	-	-	-	-	-	-	-	-	-	-	-	29.63	-	29.63	124.25	47.85
Pennsylvania	-	-	-	2.89	-	2.45	-	1.62	45.65	86.92	57.32	40.43	-	42.96	59.07	48.47
South Dakota	-	-	-	6.19	-	6.19	-	4.15	-	-	-	18.57	-	18.57	-	12.45
Tennessee	-	-	-	-	-	-	-	-	-	-	-	163.51	-	163.51	57.39	91.94
Texas	-	-	-	-	-	-	-	-	-	-	-	17.10	-	17.10	23.07	19.32
Utah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Virginia	-	-	-	-	-	-	-	-	-	-	-	35.42	-	35.42	51.06	41.82
Washington	-	-	-	-	-	-	-	-	-	-	-	33.24	-	33.24	-	22.17
West Virginia	-	-	-	-	-	-	-	-	-	-	-	7.22	-	7.22	19.53	14.17
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	15.18	-	15.18	25.08	22.18
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Combined rate	-	-	-	.74	-	.71	.22	.45	24.85	59.42	33.10	31.44	-	31.53	34.94	33.31

TABLE A-21. - Injury experience and worktime data by general work location at sandstone operations in the United States, by State, 1970 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Severity rates per million man-hours															
Alabama	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arizona	-	-	-	-	-	-	-	-	-	-	-	820	-	820	-	676
Arkansas	-	-	-	-	-	-	-	-	-	-	-	464	-	451	488	469
California	-	-	-	-	-	-	-	-	-	-	-	1,488	-	1,488	1,099	1,324
Colorado	-	-	-	-	-	-	-	-	-	-	-	370	-	370	-	329
Connecticut	-	-	-	-	-	-	-	-	-	-	-	9,550	-	9,550	4,614	7,502
Georgia	-	-	-	-	-	-	-	-	-	-	-	812	-	812	-	640
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Illinois	-	-	-	-	-	-	-	-	-	-	-	-	-	-	885	766
Indiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iowa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12,193	1,112
Kansas	-	-	-	-	-	-	-	-	-	-	-	143	-	143	280	207
Kentucky	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	425	-	425	1,227	577
Massachusetts	-	-	-	-	-	-	51,265	40,344	-	-	-	1,894	-	1,894	1,615	1,674
Michigan	-	-	-	-	-	-	-	-	-	-	-	68	-	68	603	391
Minnesota	-	-	-	-	-	-	-	-	-	-	-	2,623	-	2,623	554	1,256
Missouri	-	-	-	-	-	-	-	-	-	-	-	583	-	259	10,320	6,711
Montana	-	-	-	-	-	-	-	-	-	-	-	451	-	451	696	493
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7,208	3,283
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Jersey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Mexico	-	-	-	-	-	-	-	-	-	-	-	571	-	571	-	466
New York	-	-	-	-	-	-	-	-	-	-	-	637	-	637	588	607
North Carolina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ohio	-	-	-	-	-	-	-	-	-	-	-	1,136	-	1,136	683	840
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	423	-	423	1,303	798
Oregon	-	-	-	-	-	-	-	-	-	-	-	415	-	415	249	383
Pennsylvania	-	-	-	17,326	-	14,729	-	9,694	2,477	1,478	2,194	1,813	-	1,871	1,309	1,679
South Dakota	-	-	-	37,149	-	37,149	-	24,906	-	-	-	607	-	607	-	407
Tennessee	-	-	-	-	-	-	-	-	-	-	-	6,213	-	6,213	1,514	3,044
Texas	-	-	-	-	-	-	-	-	-	-	-	441	-	441	634	513
Utah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Virginia	-	-	-	-	-	-	-	-	-	-	-	381	-	381	1,876	993
Washington	-	-	-	-	-	-	-	-	-	-	-	1,662	-	1,662	-	1,109
West Virginia	-	-	-	-	-	-	-	-	-	-	-	282	-	282	522	417
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	1,048	-	1,048	226	466
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Combined rate	-	-	-	4,457	-	4,235	1,294	2,701	1,348	1,010	1,267	997	-	1,010	1,042	1,027

TABLE A-21. - Injury experience and worktime data by general work location at sandstone operations in the United States, by State, 1970 - Continued

State	Active operations		Average men working daily								Average days active				
	Quarries	Mills	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines	Open quarries	Other surface mining	Total mining activities	Mills
			Underground	Surface	Total										
Alabama	5	1	-	-	-	14	-	14	1	15	-	164	-	164	261
Arizona	56	17	-	-	-	68	-	68	14	82	-	192	-	192	200
Arkansas	45	19	4	1	5	174	-	179	163	342	260	256	-	256	271
California	30	13	-	-	-	141	-	141	81	222	-	202	-	202	261
Colorado	52	6	2	-	2	92	-	94	13	107	10	182	-	178	160
Connecticut	5	1	-	-	-	13	-	13	8	21	-	229	-	229	254
Georgia	4	3	-	-	-	48	-	48	13	61	-	257	-	257	257
Idaho	2	1	-	-	-	34	-	34	8	42	-	110	-	110	118
Illinois	8	10	1	-	1	57	-	58	371	429	120	294	-	291	299
Indiana	7	3	-	-	-	9	-	9	17	26	-	89	-	89	166
Iowa	1	1	16	4	20	-	-	20	2	22	307	-	-	307	306
Kansas	3	4	-	-	-	23	-	23	19	42	-	253	-	253	266
Kentucky	1	1	-	-	-	5	-	5	1	6	-	270	-	270	269
Maryland	7	7	-	-	-	38	-	38	9	47	-	217	-	217	215
Massachusetts	3	3	-	-	-	19	-	19	67	86	-	208	-	208	218
Michigan	4	1	-	-	-	20	-	20	38	58	-	304	-	304	295
Minnesota	3	3	-	-	-	24	-	24	39	63	-	199	-	199	239
Missouri	4	6	12	2	14	14	-	28	37	65	249	199	-	224	303
Montana	8	6	-	-	-	52	-	52	11	63	-	229	-	229	228
Nevada	4	3	-	-	-	20	-	20	17	37	-	282	-	282	277
New Hampshire	1	1	-	-	-	2	-	2	3	5	-	200	-	200	200
New Jersey	1	-	-	-	-	1	-	1	-	1	-	8	-	8	-
New Mexico	13	13	-	-	-	22	-	22	5	27	-	179	-	179	177
New York	14	11	-	-	-	58	-	58	75	133	-	192	-	192	242
North Carolina	7	3	-	-	-	11	-	11	16	27	-	147	-	147	248
Ohio	49	25	-	-	-	267	-	267	453	720	-	211	-	211	246
Oklahoma	8	8	-	-	-	31	-	31	20	51	-	251	-	251	256
Oregon	5	5	-	-	-	17	-	17	4	21	-	248	-	248	252
Pennsylvania	65	44	33	13	46	384	-	430	230	660	295	220	-	228	223
South Dakota	22	13	-	-	-	83	-	83	33	116	-	256	-	256	266
Tennessee	8	9	-	-	-	47	-	47	68	115	-	176	-	176	254
Texas	34	20	-	-	-	108	-	108	65	173	-	281	-	281	294
Utah	12	2	-	-	-	27	-	27	3	30	-	79	-	79	272
Virginia	13	7	-	-	-	60	-	60	42	102	-	230	-	230	230
Washington	6	3	-	-	-	27	-	27	12	39	-	132	-	132	156
West Virginia	22	17	-	-	-	136	-	136	170	306	-	252	-	252	263
Wisconsin	11	5	-	-	-	44	-	44	79	123	-	189	-	189	260
Wyoming	5	-	-	-	-	3	-	3	-	3	-	36	-	36	-
Total or average	548	295	68	20	88	2,193	-	2,281	2,207	4,488	280	221	-	223	257

TABLE A-21. - Injury experience and worktime data by general work location at sandstone operations in the United States, by State, 1970 - Continued

State	Man-days worked							Man-hours worked							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
Alabama	-	-	-	2,296	-	2,296	261	2,557	-	-	-	17,805	-	17,805	2,342	20,147
Arizona	-	-	-	13,046	-	13,046	2,803	15,849	-	-	-	104,827	-	104,827	22,427	127,254
Arkansas	1,040	260	1,300	44,597	-	45,897	44,184	90,081	9,360	2,340	11,700	390,019	-	401,719	391,456	793,175
California	-	-	-	28,507	-	28,507	21,131	49,638	-	-	-	230,515	-	230,515	167,410	397,925
Colorado	20	-	20	16,698	-	16,718	2,077	18,795	160	-	160	140,373	-	140,533	17,451	157,984
Connecticut	-	-	-	2,973	-	2,973	2,032	5,005	-	-	-	22,932	-	22,932	16,256	39,188
Georgia	-	-	-	12,359	-	12,359	3,335	15,694	-	-	-	110,902	-	110,902	29,768	140,670
Idaho	-	-	-	3,754	-	3,754	940	4,694	-	-	-	30,032	-	30,032	7,526	37,558
Illinois	120	-	120	16,750	-	16,870	110,907	127,777	480	-	480	136,449	-	136,929	881,586	1,018,515
Indiana	-	-	-	805	-	805	2,820	3,625	-	-	-	6,439	-	6,439	22,560	28,999
Iowa	4,909	1,224	6,133	-	-	6,133	612	6,745	39,248	9,792	49,040	-	-	49,040	4,921	53,961
Kansas	-	-	-	5,811	-	5,811	5,057	10,868	-	-	-	48,955	-	48,955	42,860	91,815
Kentucky	-	-	-	1,350	-	1,350	269	1,619	-	-	-	10,800	-	10,800	2,148	12,948
Maryland	-	-	-	8,240	-	8,240	1,936	10,176	-	-	-	65,927	-	65,927	15,488	81,415
Massachusetts	-	-	-	3,960	-	3,960	14,630	18,590	-	-	-	31,680	-	31,680	117,040	148,720
Michigan	-	-	-	6,089	-	6,089	11,195	17,284	-	-	-	58,792	-	58,792	89,560	148,352
Minnesota	-	-	-	4,786	-	4,786	9,303	14,089	-	-	-	38,883	-	38,883	75,758	114,641
Missouri	3,012	480	3,492	2,790	-	6,282	11,228	17,510	24,096	3,843	27,939	22,313	-	50,252	89,824	140,076
Montana	-	-	-	11,925	-	11,925	2,513	14,438	-	-	-	95,397	-	95,397	20,107	115,504
Nevada	-	-	-	5,640	-	5,640	4,717	10,357	-	-	-	45,121	-	45,121	37,734	82,855
New Hampshire	-	-	-	400	-	400	600	1,000	-	-	-	3,600	-	3,600	5,400	9,000
New Jersey	-	-	-	8	-	8	-	8	-	-	-	63	-	63	-	63
New Mexico	-	-	-	3,942	-	3,942	885	4,827	-	-	-	31,538	-	31,538	7,080	38,618
New York	-	-	-	11,141	-	11,141	18,163	29,304	-	-	-	91,029	-	91,029	147,879	238,908
North Carolina	-	-	-	1,613	-	1,613	3,975	5,588	-	-	-	12,905	-	12,905	31,800	44,705
Ohio	-	-	-	56,287	-	56,287	111,440	167,727	-	-	-	474,657	-	474,657	899,917	1,374,574
Oklahoma	-	-	-	7,766	-	7,766	5,127	12,893	-	-	-	66,139	-	66,139	49,110	115,249
Oregon	-	-	-	4,219	-	4,219	1,006	5,225	-	-	-	33,749	-	33,749	8,048	41,797
Pennsylvania	9,735	3,835	13,570	84,593	-	98,163	51,268	149,431	87,615	34,515	122,130	692,591	-	814,721	423,214	1,237,935
South Dakota	-	-	-	21,213	-	21,213	8,762	29,975	-	-	-	161,511	-	161,511	79,396	240,907
Tennessee	-	-	-	8,285	-	8,285	17,292	25,577	-	-	-	67,274	-	67,274	139,388	206,662
Texas	-	-	-	30,315	-	30,315	19,133	49,448	-	-	-	292,407	-	292,407	173,397	465,804
Utah	-	-	-	2,138	-	2,138	816	2,954	-	-	-	16,942	-	16,942	5,808	22,750
Virginia	-	-	-	13,822	-	13,822	9,652	23,474	-	-	-	112,939	-	112,939	78,345	191,284
Washington	-	-	-	3,554	-	3,554	1,873	5,427	-	-	-	30,082	-	30,082	15,014	45,096
West Virginia	-	-	-	34,338	-	34,338	44,660	78,998	-	-	-	276,827	-	276,827	358,370	635,197
Wisconsin	-	-	-	8,324	-	8,324	20,510	28,834	-	-	-	65,860	-	65,860	159,518	225,378
Wyoming	-	-	-	108	-	108	-	108	-	-	-	749	-	749	-	749
Total	18,836	5,799	24,635	484,442	-	509,077	567,112	1,076,189	160,959	50,490	211,449	4,039,023	-	4,250,472	4,635,906	8,886,378

TABLE A-22. - Injury experience and worktime data by general work location at slate operations in the United States, by State, 1970

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Injuries															
Arkansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
California	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Georgia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
Maine	-	-	-	-	-	-	-	-	4	-	4	-	-	4	-	4
New York	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-	2
North Carolina	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-	2
Pennsylvania	-	-	-	1	-	1	-	1	-	-	-	8	-	8	9	17
Vermont	-	-	-	-	-	-	-	-	-	-	-	5	-	5	4	9
Virginia	-	-	-	-	-	-	-	-	-	-	-	4	-	4	8	12
Total	-	-	-	1	-	1	-	1	4	-	4	21	-	25	24	49
	Frequency rates per million man-hours															
Arkansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31.95	26.44
California	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Georgia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.79	9.17
Maine	-	-	-	-	-	-	-	-	247.39	-	169.76	-	-	169.76	-	95.58
New York	-	-	-	-	-	-	-	-	-	-	-	54.19	-	54.19	-	34.62
North Carolina	-	-	-	-	-	-	-	-	-	-	-	46.99	-	46.99	-	27.06
Pennsylvania	-	-	-	3.23	-	3.23	-	1.10	-	-	-	25.84	-	25.84	14.96	18.66
Vermont	-	-	-	-	-	-	-	-	-	-	-	26.36	-	26.36	21.98	24.22
Virginia	-	-	-	-	-	-	-	-	-	-	-	31.53	-	31.53	21.09	23.70
Combined rate	-	-	-	1.35	-	1.29	-	.44	152.39	-	112.17	28.33	-	32.18	16.28	21.77
	Severity rates per million man-hours															
Arkansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,342	1,110
California	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Georgia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	194	165
Maine	-	-	-	-	-	-	-	-	2,103	-	1,443	-	-	1,443	-	812
New York	-	-	-	-	-	-	-	-	-	-	-	2,412	-	2,412	-	1,540
North Carolina	-	-	-	-	-	-	-	-	-	-	-	2,091	-	2,091	-	1,204
Pennsylvania	-	-	-	19,378	-	19,378	-	6,585	-	-	-	1,954	-	1,954	7,622	5,696
Vermont	-	-	-	-	-	-	-	-	-	-	-	854	-	854	670	764
Virginia	-	-	-	-	-	-	-	-	-	-	-	418	-	418	282	316
Combined rate	-	-	-	8,095	-	7,723	-	2,666	1,295	-	953	1,346	-	1,328	3,319	2,632

TABLE A-22. - Injury experience and worktime data by general work location at slate operations in the United States, by State, 1970 - Continued

State	Active operations		Average men working daily								Average days active				
	Quarries	Mills	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines	Open quarries	Other surface mining	Total mining activities	Mills
			Underground	Surface	Total										
Arkansas	3	1	-	-	-	4	-	4	15	19	-	204	-	204	261
California	3	1	-	-	-	8	-	8	10	18	-	151	-	151	300
Georgia	3	2	5	1	6	10	-	16	90	106	252	259	-	256	257
Maine	1	1	8	4	12	-	-	12	8	20	218	-	-	218	254
New York	10	6	-	-	-	25	-	25	14	39	-	185	-	185	186
North Carolina	4	1	-	-	-	19	-	19	14	33	-	280	-	280	280
Pennsylvania	10	14	-	-	-	164	-	164	290	454	-	233	-	233	256
Vermont	21	17	-	-	-	92	-	92	82	174	-	243	-	243	252
Virginia	4	5	-	-	-	65	-	65	168	233	-	262	-	262	296
Total or average	59	48	13	5	18	387	-	405	691	1,096	229	238	-	238	265

State	Man-days worked								Man-hours worked							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
Arkansas	-	-	-	815	-	815	3,913	4,728	-	-	-	6,520	-	6,520	31,301	37,821
California	-	-	-	1,210	-	1,210	3,000	4,210	-	-	-	8,360	-	8,360	24,000	32,360
Georgia	1,260	252	1,512	2,592	-	4,104	23,160	27,264	10,080	2,016	12,096	20,736	-	32,832	185,280	218,112
Maine	1,796	822	2,618	-	-	2,618	2,032	4,650	16,169	7,394	23,563	-	-	23,563	18,285	41,848
New York	-	-	-	4,613	-	4,613	2,609	7,222	-	-	-	36,905	-	36,905	20,873	57,778
North Carolina	-	-	-	5,320	-	5,320	3,920	9,240	-	-	-	42,560	-	42,560	31,360	73,920
Pennsylvania	-	-	-	38,275	-	38,275	74,143	112,418	-	-	-	309,635	-	309,635	601,528	911,163
Vermont	-	-	-	22,349	-	22,349	20,629	42,978	-	-	-	189,652	-	189,652	181,997	371,649
Virginia	-	-	-	17,007	-	17,007	49,693	66,700	-	-	-	126,865	-	126,865	379,394	506,259
Total	3,056	1,074	4,130	92,181	-	96,311	183,099	279,410	26,249	9,410	35,659	741,233	-	776,892	1,474,018	2,250,910

TABLE A-23. - Injury experience and worktime data by general work location at traprock operations in the United States, by State, 1970

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Injuries															
Alaska	-	-	-	1	-	1	-	1	-	-	-	-	-	-	-	-
Arizona	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
California	-	-	-	-	-	-	-	-	-	-	-	3	-	3	4	7
Colorado	-	-	-	-	-	-	-	-	-	-	-	3	-	3	-	3
Connecticut	-	-	-	-	-	-	-	-	-	-	-	8	-	8	9	17
Hawaii	-	-	-	-	-	-	-	-	-	-	-	27	-	27	8	35
Idaho	-	-	-	-	-	-	-	-	-	-	-	3	-	3	3	6
Kansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	22	-	22	10	32
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	3	-	3	10	13
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Minnesota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Misaouri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montana	-	-	-	-	-	-	-	-	-	-	-	2	-	2	1	3
New Jersey	-	-	-	-	-	-	-	-	-	-	-	35	-	35	11	46
New Mexico	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
New York	-	-	-	-	-	-	-	-	-	-	-	4	-	4	1	5
North Carolina	-	-	-	-	-	-	-	-	-	-	-	1	-	1	5	6
Oregon	-	-	-	1	-	1	-	1	-	-	-	35	-	35	15	50
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	12	-	12	3	15
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Texas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Virginia	-	-	-	1	-	1	-	1	-	-	-	4	-	4	8	12
Washington	-	-	-	-	-	-	-	-	-	-	-	15	-	15	7	22
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	1	-	1	4	5
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	3	-	3	-	3	-	-	-	180	-	180	99	279

TABLE A-23. - Injury experience and worktime data by general work location at traprock operations in the United States, by State, 1970 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Frequency rates per million man-hours															
Alaska	-	-	-	29.65	-	29.65	-	27.45	-	-	-	-	-	-	-	-
Arizona	-	-	-	-	-	-	-	-	-	-	-	24.37	-	24.37	-	18.75
California	-	-	-	-	-	-	-	-	-	-	-	21.02	-	21.02	27.91	24.48
Colorado	-	-	-	-	-	-	-	-	-	-	-	31.83	-	31.83	-	26.52
Connecticut	-	-	-	-	-	-	-	-	-	-	-	34.67	-	34.67	27.12	30.22
Hawaii	-	-	-	-	-	-	-	-	-	-	-	61.05	-	61.05	69.18	62.74
Idaho	-	-	-	-	-	-	-	-	-	-	-	22.31	-	22.31	50.22	30.89
Kansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	59.27	-	59.27	27.40	43.47
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	9.67	-	9.67	46.91	24.84
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Minnesota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montana	-	-	-	-	-	-	-	-	-	-	-	45.52	-	45.52	100.00	55.62
New Jersey	-	-	-	-	-	-	-	-	-	-	-	45.35	-	45.35	20.09	34.86
New Mexico	-	-	-	-	-	-	-	-	-	-	-	46.10	-	46.10	-	38.55
New York	-	-	-	-	-	-	-	-	-	-	-	19.66	-	19.66	8.45	15.54
North Carolina	-	-	-	-	-	-	-	-	-	-	-	3.95	-	3.95	50.51	17.05
Oregon	-	-	-	.76	-	.75	-	.58	-	-	-	26.45	-	26.32	37.05	28.82
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	30.94	-	30.94	7.47	19.00
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Texas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Virginia	-	-	-	4.15	-	4.15	-	2.50	-	-	-	16.59	-	16.59	50.30	29.98
Washington	-	-	-	-	-	-	-	-	-	-	-	20.70	-	20.70	41.82	24.66
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	12.96	-	12.96	25.92	21.60
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Combined rate	-	-	-	.51	-	.51	-	.32	-	-	-	30.47	-	30.43	29.57	30.12

TABLE A-23. - Injury experience and worktime data by general work location at traprock operations in the United States, by State, 1970 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Severity rates per million man-hours															
Alaska	-	-	-	177,899	-	177,899	-	164,713	-	-	-	-	-	-	-	-
Arizona	-	-	-	-	-	-	-	-	-	-	-	122	-	122	-	94
California	-	-	-	-	-	-	-	-	-	-	-	315	-	315	628	472
Colorado	-	-	-	-	-	-	-	-	-	-	-	520	-	520	-	433
Connecticut	-	-	-	-	-	-	-	-	-	-	-	672	-	672	958	841
Hawaii	-	-	-	-	-	-	-	-	-	-	-	1,115	-	1,115	1,461	1,187
Idaho	-	-	-	-	-	-	-	-	-	-	-	625	-	625	1,121	777
Kansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	881	-	881	342	614
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	187	-	187	858	460
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Minnesota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montana	-	-	-	-	-	-	-	-	-	-	-	1,365	-	1,365	3,600	1,780
New Jersey	-	-	-	-	-	-	-	-	-	-	-	474	-	474	385	437
New Mexico	-	-	-	-	-	-	-	-	-	-	-	1,383	-	1,383	-	1,156
New York	-	-	-	-	-	-	-	-	-	-	-	118	-	118	25	84
North Carolina	-	-	-	-	-	-	-	-	-	-	-	95	-	95	737	276
Oregon	-	-	-	4,534	-	4,512	-	3,459	-	-	-	712	-	708	795	729
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	1,459	-	1,459	458	950
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Texas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Virginia	-	-	-	24,878	-	24,878	-	14,991	-	-	-	340	-	340	214	290
Washington	-	-	-	-	-	-	-	-	-	-	-	1,009	-	1,009	2,103	1,214
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	52	-	52	979	670
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Combined rate	-	-	-	3,047	-	3,043	-	1,943	-	-	-	685	-	684	692	687

TABLE A-23. - Injury experience and worktime data by general work location at traprock operations in the United States, by State, 1970 - Continued

State	Active operations		Average men working daily							Average days active				
	Quarries	Mills	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines	Open quarries	Other surface mining	Total mining activities	Mills
			Underground	Surface	Total										
Alaska	3	1	-	-	-	29	-	29	5	34	-	134	-	134	60
Arizona	8	2	-	-	-	20	-	20	6	26	-	256	-	256	256
California	15	6	-	-	-	81	-	81	81	162	-	220	-	220	221
Colorado	6	2	-	-	-	45	-	45	9	54	-	249	-	249	250
Connecticut	12	10	-	-	-	117	-	117	175	292	-	239	-	239	233
Hawaii	7	7	-	-	-	183	-	183	49	232	-	275	-	275	269
Idaho	19	10	-	-	-	106	-	106	52	158	-	157	-	157	141
Kansas	-	1	-	-	-	-	-	-	3	3	-	-	-	-	166
Maryland	5	7	-	-	-	147	-	147	153	300	-	289	-	289	292
Massachusetts	16	17	-	-	-	168	-	168	111	279	-	220	-	220	227
Michigan	2	2	-	-	-	7	-	7	2	9	-	50	-	50	36
Minnesota	1	1	-	-	-	11	-	11	4	15	-	131	-	131	131
Missouri	1	1	-	-	-	5	-	5	1	6	-	256	-	256	177
Montana	4	4	-	-	-	22	-	22	5	27	-	250	-	250	250
New Jersey	21	20	-	-	-	401	-	401	263	664	-	236	-	236	253
New Mexico	10	10	-	-	-	15	-	15	3	18	-	181	-	181	177
New York	3	3	-	-	-	83	-	83	45	128	-	306	-	306	329
North Carolina	9	7	-	-	-	113	-	113	44	157	-	260	-	260	256
Oregon	268	169	2	1	3	799	-	802	254	1,056	277	207	-	207	199
Pennsylvania	21	18	-	-	-	170	-	170	185	355	-	263	-	263	250
South Dakota	1	-	-	-	-	2	-	2	-	2	-	180	-	180	-
Texas	2	2	-	-	-	10	-	10	3	13	-	249	-	249	240
Virginia	11	9	-	-	-	105	-	105	67	172	-	256	-	256	261
Washington	235	81	-	-	-	492	-	492	105	597	-	184	-	184	200
Wisconsin	3	3	-	-	-	44	-	44	75	119	-	207	-	207	255
Wyoming	3	1	-	-	-	3	-	3	1	4	-	252	-	252	252
Total or average	686	394	2	1	3	3,178	-	3,181	1,701	4,882	277	224	-	224	238

TABLE A-23. - Injury experience and worktime data by general work location at traprock operations in the United States, by State, 1970 - Continued

State	Man-days worked							Man-hours worked							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
Alaska	-	-	-	3,879	-	3,879	300	4,179	-	-	-	33,727	-	33,727	2,700	36,427
Arizona	-	-	-	5,130	-	5,130	1,538	6,668	-	-	-	41,040	-	41,040	12,305	53,345
California	-	-	-	17,837	-	17,837	17,912	35,749	-	-	-	142,695	-	142,695	143,297	285,992
Colorado	-	-	-	11,219	-	11,219	2,250	13,469	-	-	-	94,237	-	94,237	18,900	113,137
Connecticut	-	-	-	27,984	-	27,984	40,842	68,826	-	-	-	230,751	-	230,751	331,843	562,594
Hawaii	-	-	-	50,259	-	50,259	13,177	63,436	-	-	-	442,226	-	442,226	115,646	557,872
Idaho	-	-	-	16,591	-	16,591	7,343	23,934	-	-	-	134,479	-	134,479	59,743	194,222
Kansas	-	-	-	-	-	-	498	498	-	-	-	-	-	-	3,972	3,972
Maryland	-	-	-	42,423	-	42,423	44,658	87,081	-	-	-	371,160	-	371,160	365,015	736,175
Massachusetts	-	-	-	36,896	-	36,896	25,198	62,094	-	-	-	310,213	-	310,213	213,166	523,379
Michigan	-	-	-	351	-	351	71	422	-	-	-	3,147	-	3,147	627	3,774
Minnesota	-	-	-	1,441	-	1,441	524	1,965	-	-	-	12,969	-	12,969	4,716	17,685
Missouri	-	-	-	1,282	-	1,282	177	1,459	-	-	-	10,260	-	10,260	1,416	11,676
Montana	-	-	-	5,493	-	5,493	1,250	6,743	-	-	-	43,941	-	43,941	10,000	53,941
New Jersey	-	-	-	94,554	-	94,554	66,604	161,158	-	-	-	771,811	-	771,811	547,589	1,319,400
New Mexico	-	-	-	2,712	-	2,712	531	3,243	-	-	-	21,693	-	21,693	4,248	25,941
New York	-	-	-	25,429	-	25,429	14,792	40,221	-	-	-	203,435	-	203,435	118,333	321,768
North Carolina	-	-	-	29,341	-	29,341	11,261	40,602	-	-	-	252,976	-	252,976	98,996	351,972
Oregon	582	250	832	165,246	-	166,078	50,478	216,556	4,655	2,000	6,655	1,323,270	-	1,329,925	404,805	1,734,730
Pennsylvania	-	-	-	44,630	-	44,630	46,189	90,819	-	-	-	387,827	-	387,827	401,723	789,550
South Dakota	-	-	-	361	-	361	-	361	-	-	-	2,891	-	2,891	-	2,891
Texas	-	-	-	2,490	-	2,490	719	3,209	-	-	-	24,475	-	24,475	6,765	31,240
Virginia	-	-	-	26,900	-	26,900	17,482	44,382	-	-	-	241,181	-	241,181	159,054	400,235
Washington	-	-	-	90,657	-	90,657	20,950	111,607	-	-	-	724,733	-	724,733	167,380	892,113
Wisconsin	-	-	-	9,110	-	9,110	19,160	28,270	-	-	-	77,137	-	77,137	154,296	231,433
Wyoming	-	-	-	756	-	756	252	1,008	-	-	-	6,048	-	6,048	2,016	8,064
Total	582	250	832	712,971	-	713,803	404,156	1,117,959	4,655	2,000	6,655	5,908,322	-	5,914,977	3,348,551	9,263,528

TABLE A-24. - Injury experience and worktime data by general work location at miscellaneous stone operations in the United States, by State, 1970

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Injuries															
Alaska	-	-	-	-	-	-	-	-	-	-	-	5	-	5	1	6
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
California	-	-	-	1	-	1	-	1	-	-	-	15	-	15	14	29
Colorado	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-	2
Hawaii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	3	-	3	1	4
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	2	-	2	1	3
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Minnesota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Montana	-	-	-	-	-	-	-	-	-	-	-	6	-	6	1	7
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
New Jersey	-	-	-	-	-	-	-	-	-	-	-	3	-	3	4	7
New Mexico	-	-	-	-	-	-	-	-	-	-	-	2	-	2	3	5
New York	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
North Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oregon	-	-	-	-	-	-	-	-	-	-	-	4	-	4	1	5
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	2	-	2	1	3
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Texas	-	-	-	-	-	-	-	-	-	-	-	4	-	4	3	7
Utah	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
Vermont	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Virginia	-	-	-	-	-	-	-	-	-	-	-	1	-	1	3	4
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Total	-	-	-	1	-	1	-	1	-	-	-	51	-	51	37	88

TABLE A-24. - Injury experience and worktime data by general work location at miscellaneous stone operations in the United States, by State, 1970 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Frequency rates per million man-hours															
Alaska	-	-	-	-	-	-	-	-	-	-	-	26.24	-	26.24	21.22	25.25
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
California	-	-	-	2.62	-	2.62	-	1.18	-	-	-	39.32	-	39.32	30.21	34.32
Colorado	-	-	-	-	-	-	-	-	-	-	-	18.18	-	18.18	-	15.01
Hawaii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	104.84	14.14
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	71.46	-	71.46	87.29	74.85
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	39.96	-	39.96	47.69	42.24
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Minnesota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.06	6.98
Montana	-	-	-	-	-	-	-	-	-	-	-	25.62	-	25.62	21.56	24.95
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	-	-	-	59.69	31.62
New Jersey	-	-	-	-	-	-	-	-	-	-	-	99.83	-	99.83	56.85	69.72
New Mexico	-	-	-	-	-	-	-	-	-	-	-	38.33	-	38.33	272.41	79.12
New York	-	-	-	-	-	-	-	-	-	-	-	81.70	-	81.70	-	32.68
North Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oregon	-	-	-	-	-	-	-	-	-	-	-	23.38	-	23.38	29.35	24.37
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	13.33	-	13.33	30.44	16.40
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Texas	-	-	-	-	-	-	-	-	-	-	-	21.85	-	21.85	14.89	18.21
Utah	-	-	-	-	-	-	-	-	-	-	-	56.95	-	56.95	-	56.95
Vermont	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Virginia	-	-	-	-	-	-	-	-	-	-	-	10.26	-	10.26	10.43	10.38
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	232.45	36.40
Combined rate	-	-	-	.51	-	.51	-	.29	-	-	-	25.91	-	25.90	25.20	25.60

TABLE A-24. - Injury experience and worktime data by general work location at miscellaneous stone operations in the United States, by State, 1970 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Severity rates per million man-hours															
Alaska	-	-	-	-	-	-	-	-	-	-	-	808	-	808	1,337	913
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
California	-	-	-	15,726	-	15,726	-	7,101	-	-	-	1,531	-	1,531	406	914
Colorado	-	-	-	-	-	-	-	-	-	-	-	382	-	382	-	315
Hawaii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	944	127
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	119	-	119	87	112
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	1,019	-	1,019	1,669	1,211
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Minnesota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	564	489
Montana	-	-	-	-	-	-	-	-	-	-	-	653	-	653	561	638
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,149	1,138
New Jersey	-	-	-	-	-	-	-	-	-	-	-	3,161	-	3,161	782	1,494
New Mexico	-	-	-	-	-	-	-	-	-	-	-	1,073	-	1,073	1,271	1,108
New York	-	-	-	-	-	-	-	-	-	-	-	9,232	-	9,232	-	3,693
North Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oregon	-	-	-	-	-	-	-	-	-	-	-	602	-	602	1,057	678
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	20	-	20	61	27
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Texas	-	-	-	-	-	-	-	-	-	-	-	1,267	-	1,267	447	837
Utah	-	-	-	-	-	-	-	-	-	-	-	797	-	797	-	797
Vermont	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Virginia	-	-	-	-	-	-	-	-	-	-	-	51	-	51	316	249
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20,921	3,276
Combined rate	-	-	-	3,048	-	3,048	-	1,746	-	-	-	818	-	818	549	703

TABLE A-24. - Injury experience and worktime data by general work location at miscellaneous stone operations in the United States, by State, 1970 - Continued

State	Active operations		Average men working daily							Average days active				
	Quarries	Mills	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines	Open quarries	Other surface mining	Total mining activities	Mills
			Underground	Surface	Total										
Alaska	10	10	-	-	-	106	-	106	26	132	-	200	-	200	201
Arizona	12	5	-	-	-	19	-	19	6	25	-	203	-	203	166
California	61	22	-	-	-	230	-	230	231	461	-	206	-	206	257
Colorado	20	8	-	-	-	67	-	67	14	81	-	201	-	201	204
Hawaii	23	9	-	-	-	45	-	45	6	51	-	170	-	170	199
Idaho	1	-	-	-	-	4	-	4	-	4	-	120	-	120	-
Indiana	15	-	-	-	-	13	-	13	-	13	-	93	-	93	-
Maine	2	2	-	-	-	10	-	10	12	22	-	162	-	162	162
Maryland	5	4	-	-	-	20	-	20	6	26	-	262	-	262	239
Massachusetts	3	3	-	-	-	32	-	32	13	45	-	178	-	178	179
Michigan	17	2	-	-	-	30	1	31	2	33	-	169	8	164	228
Minnesota	1	-	-	-	-	2	-	2	-	2	-	78	-	78	-
Missouri	2	2	-	-	-	10	-	10	65	75	-	241	-	241	238
Montana	20	20	-	-	-	131	-	131	26	157	-	224	-	224	223
Nevada	3	-	-	-	-	2	-	2	-	2	-	32	-	32	-
New Hampshire	2	2	-	-	-	12	-	12	9	21	-	155	-	155	193
New Jersey	2	2	-	-	-	12	-	12	28	40	-	307	-	307	312
New Mexico	23	19	-	-	-	39	-	39	10	49	-	167	-	167	138
New York	1	1	-	-	-	6	-	6	9	15	-	204	-	204	204
North Dakota	7	1	-	-	-	3	-	3	1	4	-	237	-	237	223
Oklahoma	1	1	-	-	-	1	-	1	1	2	-	223	-	223	223
Oregon	7	4	-	-	-	96	-	96	20	116	-	223	-	223	213
Pennsylvania	8	5	-	-	-	68	-	68	14	82	-	256	-	256	268
Rhode Island	2	1	-	-	-	10	-	10	6	16	-	168	-	168	180
South Dakota	1	-	-	-	-	2	-	2	-	2	-	102	-	102	-
Texas	3	2	-	-	-	76	-	76	72	148	-	298	-	298	350
Utah	10	-	-	-	-	10	-	10	-	10	-	195	-	195	-
Vermont	1	1	-	-	-	1	-	1	1	2	-	117	-	117	117
Virginia	11	3	-	-	-	53	-	53	157	210	-	230	-	230	229
Washington	6	-	-	-	-	3	-	3	-	3	-	33	-	33	-
Wyoming	27	1	-	-	-	20	-	20	2	22	-	133	-	133	239
Total or sverage	307	130	-	-	-	1,133	1	1,134	737	1,871	-	211	8	211	247

TABLE A-24. - Injury experience and worktime data by general work location at miscellaneous stone operations in the United States, by State, 1970 - Continued

State	Man-days worked							Man-hours worked						
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
Alaska	-	-	-	21,168	-	21,168	5,235	26,403	-	-	-	190,515	-	190,515	47,116	237,631
Arizona	-	-	-	3,852	-	3,852	995	4,847	-	-	-	30,856	-	30,856	7,953	38,809
California	-	-	-	47,410	-	47,410	59,366	106,776	-	-	-	381,531	-	381,531	463,389	844,920
Colorado	-	-	-	13,461	-	13,461	2,850	16,311	-	-	-	110,002	-	110,002	23,246	133,248
Hawaii	-	-	-	7,640	-	7,640	1,192	8,832	-	-	-	61,181	-	61,181	9,538	70,719
Idaho	-	-	-	480	-	480	-	480	-	-	-	3,840	-	3,840	-	3,840
Indiana	-	-	-	1,204	-	1,204	-	1,204	-	-	-	10,309	-	10,309	-	10,309
Maine	-	-	-	1,625	-	1,625	1,950	3,575	-	-	-	14,625	-	14,625	18,525	33,150
Maryland	-	-	-	5,248	-	5,248	1,432	6,680	-	-	-	41,984	-	41,984	11,456	53,440
Massachusetts	-	-	-	5,681	-	5,681	2,330	8,011	-	-	-	50,046	-	50,046	20,970	71,016
Michigan	-	-	-	5,074	8	5,082	456	5,538	-	-	-	40,521	60	40,581	3,648	44,229
Minnesota	-	-	-	156	-	156	-	156	-	-	-	1,251	-	1,251	-	1,251
Missouri	-	-	-	2,407	-	2,407	15,502	17,909	-	-	-	19,258	-	19,258	124,018	143,276
Montana	-	-	-	29,279	-	29,279	5,798	35,077	-	-	-	234,232	-	234,232	46,384	280,616
Nevada	-	-	-	65	-	65	-	65	-	-	-	520	-	520	-	520
New Hampshire	-	-	-	1,858	-	1,858	1,734	3,592	-	-	-	14,869	-	14,869	16,752	31,621
New Jersey	-	-	-	3,688	-	3,688	8,726	12,414	-	-	-	30,050	-	30,050	70,355	100,405
New Mexico	-	-	-	6,523	-	6,523	1,377	7,900	-	-	-	52,181	-	52,181	11,013	63,194
New York	-	-	-	1,224	-	1,224	1,836	3,060	-	-	-	12,240	-	12,240	18,360	30,600
North Dakota	-	-	-	710	-	710	223	933	-	-	-	5,678	-	5,678	1,784	7,462
Oklahoma	-	-	-	223	-	223	223	446	-	-	-	1,784	-	1,784	1,784	3,568
Oregon	-	-	-	21,386	-	21,386	4,259	25,645	-	-	-	171,093	-	171,093	34,072	205,165
Pennsylvania	-	-	-	17,396	-	17,396	3,750	21,146	-	-	-	150,066	-	150,066	32,850	182,916
Rhode Island	-	-	-	1,680	-	1,680	1,080	2,760	-	-	-	15,600	-	15,600	10,800	26,400
South Dakota	-	-	-	204	-	204	-	204	-	-	-	1,629	-	1,629	-	1,629
Texas	-	-	-	22,673	-	22,673	25,225	47,898	-	-	-	183,059	-	183,059	201,433	384,492
Utah	-	-	-	1,951	-	1,951	-	1,951	-	-	-	17,560	-	17,560	-	17,560
Vermont	-	-	-	117	-	117	117	234	-	-	-	927	-	927	927	1,854
Virginia	-	-	-	12,189	-	12,189	35,960	48,149	-	-	-	97,513	-	97,513	287,683	385,196
Washington	-	-	-	100	-	100	-	100	-	-	-	599	-	599	-	599
Wyoming	-	-	-	2,657	-	2,657	478	3,135	-	-	-	23,169	-	23,169	4,302	27,471
Total	-	-	-	239,329	8	239,337	182,094	421,431	-	-	-	1,968,688	60	1,968,748	1,468,358	3,437,106

TABLE A-25. - Injury experience and worktime data by general work location at stone quarries and mills in the United States, by State, 1970

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Injuries															
Alabama	-	-	-	-	-	-	1	1	1	1	2	14	2	18	36	54
Alaska	-	-	-	1	-	1	-	1	-	-	-	14	-	14	3	17
Arizona	-	-	-	-	-	-	-	-	-	-	-	6	-	6	3	9
Arkansas	-	-	-	-	-	-	-	-	3	1	4	29	-	33	44	77
California	-	-	-	3	-	3	-	3	11	3	14	55	1	70	64	134
Colorado	-	-	-	-	-	-	-	-	-	-	-	11	-	11	8	19
Connecticut	-	-	-	-	-	-	-	-	-	-	-	16	-	16	14	30
Florida	-	-	-	-	2	2	1	3	-	-	-	55	3	58	63	121
Georgia	-	-	-	1	-	1	-	1	3	-	3	64	-	67	98	165
Hawaii	-	-	-	-	-	-	-	-	-	-	-	32	-	32	25	57
Idaho	-	-	-	-	-	-	-	-	-	-	-	5	-	5	4	9
Illinois	-	-	-	2	-	2	1	3	8	1	9	55	-	64	109	173
Indiana	-	-	-	1	-	1	-	1	-	-	-	54	-	54	59	113
Iowa	-	-	-	-	-	-	1	1	4	2	6	46	-	52	47	99
Kansas	-	-	-	-	-	-	-	-	-	6	6	19	-	25	26	51
Kentucky	-	1	1	-	-	1	-	1	14	12	26	53	-	79	32	111
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	23	23	26	49
Maine	-	-	-	-	-	-	-	-	4	-	4	1	-	5	-	5
Maryland	-	-	-	-	-	-	-	-	-	-	-	54	-	54	43	97
Massachusetts	-	-	-	-	-	-	1	1	-	-	-	14	-	14	32	46
Michigan	-	-	-	-	-	-	-	-	1	-	1	23	-	24	33	57
Minnesota	-	-	-	-	-	-	-	-	-	-	-	22	-	22	51	73
Mississippi	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
Missouri	1	-	1	-	-	1	-	1	7	1	8	62	-	70	121	191
Montana	-	-	-	-	-	-	-	-	-	-	-	12	-	12	9	21
Nebraska	-	-	-	-	-	-	-	-	1	-	1	12	-	13	18	31
Nevada	-	-	-	-	-	-	-	-	-	-	-	6	-	6	15	21
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	5	-	5	8	13
New Jersey	-	-	-	-	-	-	-	-	-	-	-	53	-	53	36	89
New Mexico	-	-	-	-	-	-	-	-	-	-	-	7	-	7	5	12
New York	-	-	-	2	-	2	1	3	-	-	-	54	-	54	70	124
North Carolina	-	-	-	-	-	-	1	1	-	-	-	25	-	25	44	69
North Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ohio	-	-	-	-	-	-	-	-	1	-	1	99	-	100	130	230
Oklahoma	-	-	-	-	-	-	-	-	1	-	1	39	-	40	36	76
Oregon	-	-	-	1	-	1	-	1	-	-	-	41	-	41	42	83
Pennsylvania	-	-	-	4	-	4	1	5	15	4	19	113	-	132	141	273
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	2
South Carolina	-	-	-	1	-	1	1	2	-	-	-	11	-	11	12	23
South Dakota	-	-	-	1	-	1	-	1	-	-	-	26	-	26	5	31
Tennessee	-	-	-	3	-	3	1	4	-	-	-	63	-	63	72	135
Texas	-	-	-	1	-	1	1	2	-	-	-	87	31	118	129	247
Utah	-	-	-	-	-	-	-	-	-	-	-	7	-	7	4	11
Vermont	-	-	-	-	-	-	-	-	7	-	7	42	-	49	30	79
Virginia	-	-	-	3	-	3	-	3	4	-	4	66	-	70	78	148
Washington	-	-	-	-	-	-	-	-	-	-	-	23	-	23	13	36
West Virginia	-	-	-	-	-	-	1	1	1	7	8	24	-	32	20	52
Wisconsin	-	-	-	-	-	-	2	2	-	-	-	59	-	59	38	97
Wyoming	-	1	1	-	-	1	-	1	-	-	-	1	-	1	4	5
Total	1	2	3	24	2	29	14	43	86	38	124	1,581	60	1,765	1,901	3,666

TABLE A-25. - Injury experience and worktime data by general work location at stone quarries and mills in the United States, by State, 1970 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Frequency rates per million man-hours															
Alabama	-	-	-	-	-	-	0.26	0.18	13.34	65.69	22.18	9.52	21.49	10.88	9.20	9.70
Alaska	-	-	-	1.69	-	1.69	-	1.40	-	-	-	23.72	-	23.72	24.05	23.77
Arizona	-	-	-	-	-	-	-	-	-	-	-	16.81	-	16.81	4.10	8.27
Arkansas	-	-	-	-	-	-	-	-	38.17	14.21	26.85	28.11	-	27.96	21.70	24.00
California	-	-	-	1.44	-	1.23	-	.28	50.52	55.54	51.52	26.40	11.69	28.68	7.74	12.51
Colorado	-	-	-	-	-	-	-	-	-	-	-	17.31	-	17.30	10.68	13.72
Connecticut	-	-	-	-	-	-	-	-	-	-	-	51.54	-	51.54	27.93	36.96
Florida	-	-	-	-	18.18	.74	.28	.48	-	-	-	21.11	27.27	21.36	17.75	19.31
Georgia	-	-	-	.43	-	.40	-	.16	22.95	-	18.72	27.36	-	26.81	24.83	25.60
Hawaii	-	-	-	-	-	-	-	-	-	-	-	52.12	-	52.12	37.90	44.76
Idaho	-	-	-	-	-	-	-	-	-	-	-	16.56	-	15.03	25.64	18.42
Illinois	-	-	-	.71	-	.62	.21	.38	23.89	11.62	21.38	19.58	-	19.81	22.86	21.63
Indiana	-	-	-	.43	-	.43	-	.14	-	-	-	23.30	-	22.99	12.68	16.14
Iowa	-	-	-	-	-	-	.30	.17	26.47	50.72	31.49	19.88	-	20.76	14.09	16.95
Kansas	-	-	-	-	-	-	-	-	-	166.86	34.42	14.08	-	16.40	13.56	14.82
Kentucky	-	3.26	1.06	-	-	.34	-	.24	21.86	39.07	27.44	26.06	-	26.49	25.54	26.21
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	33.07	26.37	32.88	29.47
Maine	-	-	-	-	-	-	-	-	247.39	-	169.76	9.29	-	38.11	-	10.11
Maryland	-	-	-	-	-	-	-	-	-	-	-	41.47	-	40.13	21.39	28.90
Massachusetts	-	-	-	-	-	-	1.19	.71	-	-	-	24.89	-	24.89	38.02	32.76
Michigan	-	-	-	-	-	-	-	-	130.21	-	104.17	13.62	-	14.13	6.08	8.00
Minnesota	-	-	-	-	-	-	-	-	-	-	-	31.68	-	31.68	25.52	27.11
Mississippi	-	-	-	-	-	-	-	-	-	-	-	17.76	-	17.76	-	4.67
Missouri	1.32	-	1.06	-	-	.26	-	.11	9.25	5.34	8.47	21.64	-	18.38	21.97	20.50
Montana	-	-	-	-	-	-	-	-	-	-	-	22.85	-	22.85	21.58	22.28
Nebraska	-	-	-	-	-	-	-	-	31.88	-	25.28	18.72	-	19.10	22.65	21.01
Nevada	-	-	-	-	-	-	-	-	-	-	-	18.48	-	18.48	42.14	30.85
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	54.47	-	54.47	33.63	39.43
New Jersey	-	-	-	-	-	-	-	-	-	-	-	51.17	-	51.17	38.14	44.96
New Mexico	-	-	-	-	-	-	-	-	-	-	-	28.93	-	28.93	21.77	25.44
New York	-	-	-	.90	-	.88	.22	.44	-	-	-	24.17	-	23.85	15.35	18.17
North Carolina	-	-	-	-	-	-	.53	.23	-	-	-	9.87	-	9.87	23.30	15.61
North Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ohio	-	-	-	-	-	-	-	-	3.52	-	3.02	29.27	-	26.93	15.63	19.12
Oklahoma	-	-	-	-	-	-	-	-	13.33	-	9.24	28.70	-	27.27	26.05	26.68
Oregon	-	-	-	.65	-	.65	-	.40	-	-	-	26.64	-	26.51	45.25	33.53
Pennsylvania	-	-	-	.73	-	.63	.09	.28	19.84	27.23	21.04	20.64	-	20.69	12.06	15.11
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	27.63	-	27.63	18.42	22.10
South Carolina	-	-	-	1.20	-	1.20	.83	.98	-	-	-	13.24	-	13.24	9.99	11.32
South Dakota	-	-	-	2.18	-	2.18	-	.93	-	-	-	56.74	-	56.74	8.16	28.94
Tennessee	-	-	-	1.24	-	1.19	.30	.68	-	-	-	25.94	-	24.96	21.42	22.94
Texas	-	-	-	.29	-	.25	.14	.18	-	-	-	24.82	60.25	29.21	18.34	22.30
Utah	-	-	-	-	-	-	-	-	-	-	-	26.70	-	24.41	7.64	13.57
Vermont	-	-	-	-	-	-	-	-	29.37	-	23.62	40.01	-	36.40	22.46	29.46
Virginia	-	-	-	.97	-	.87	-	.39	13.46	-	11.05	21.42	-	20.33	18.52	19.33
Washington	-	-	-	-	-	-	-	-	-	-	-	25.67	-	25.67	17.83	22.15
West Virginia	-	-	-	-	-	-	.76	.41	4.28	99.06	26.29	28.66	-	28.03	15.23	21.18
Wisconsin	-	-	-	-	-	-	1.40	.64	-	-	-	34.68	-	34.68	26.53	30.96
Wyoming	-	86.81	14.08	-	-	4.97	-	2.44	-	-	-	7.69	-	4.97	19.14	12.19
Combined rate	.21	1.47	.50	.37	1.32	.40	.13	.23	18.31	27.90	20.46	24.24	39.49	24.24	17.06	19.90

TABLE A-25. - Injury experience and worktime data by general work location at stone quarries and mills in the United States, by State, 1970 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Severity rates per million man-hours															
Alabama	-	-	-	-	-	-	1,533	1,077	93	20,824	3,593	302	752	507	244	322
Alaska	-	-	-	10,164	-	10,164	-	8,391	-	-	-	625	-	625	1,266	737
Arizona	-	-	-	-	-	-	-	-	-	-	-	303	-	303	18	111
Arkansas	-	-	-	-	-	-	-	-	433	57	255	4,920	-	4,331	615	1,983
California	-	-	-	8,640	-	7,375	-	1,680	464	167	405	2,065	129	1,812	257	611
Colorado	-	-	-	-	-	-	-	-	-	-	-	274	-	274	166	215
Connecticut	-	-	-	-	-	-	-	-	-	-	-	1,488	-	1,488	880	1,112
Florida	-	-	-	-	109,090	4,418	1,690	2,873	-	-	-	620	427	612	569	588
Georgia	-	-	-	2,565	-	2,401	-	931	436	-	356	1,258	-	1,200	976	1,063
Hawaii	-	-	-	-	-	-	-	-	-	-	-	2,223	-	2,223	928	1,552
Idaho	-	-	-	-	-	-	-	-	-	-	-	467	-	424	583	475
Illinois	-	-	-	4,271	-	3,715	1,258	2,250	809	12	646	1,036	-	986	681	804
Indiana	-	-	-	2,589	-	2,554	-	857	-	-	-	804	-	793	731	752
Iowa	-	-	-	-	-	-	1,799	1,027	351	76	294	734	-	701	471	570
Kansas	-	-	-	-	-	-	-	-	-	3,560	734	329	-	375	447	415
Kentucky	-	19,536	6,331	-	-	2,012	-	1,417	393	892	555	1,769	-	1,383	467	1,112
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	621	495	1,835	1,132
Maine	-	-	-	-	-	-	-	-	2,103	-	1,443	28	-	282	-	75
Maryland	-	-	-	-	-	-	-	-	-	-	-	702	-	679	633	651
Massachusetts	-	-	-	-	-	-	7,129	4,273	-	-	-	556	-	556	734	663
Michigan	-	-	-	-	-	-	-	-	4,167	-	3,333	348	-	364	215	251
Minnesota	-	-	-	-	-	-	-	-	-	-	-	863	-	863	1,116	1,051
Mississippi	-	-	-	-	-	-	-	-	-	-	-	515	-	515	-	135
Missouri	7,930	-	6,356	-	-	1,575	-	644	193	16	158	589	-	482	2,006	1,383
Montana	-	-	-	-	-	-	-	-	-	-	-	615	-	615	654	632
Nebraska	-	-	-	-	-	-	-	-	64	-	51	271	-	259	406	338
Nevada	-	-	-	-	-	-	-	-	-	-	-	484	-	484	1,155	835
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	599	-	599	374	437
New Jersey	-	-	-	-	-	-	-	-	-	-	-	849	-	849	627	743
New Mexico	-	-	-	-	-	-	-	-	-	-	-	901	-	901	375	645
New York	-	-	-	5,372	-	5,299	1,316	2,637	-	-	-	1,983	-	1,956	521	997
North Carolina	-	-	-	-	-	-	3,177	1,357	-	-	-	399	-	399	578	475
North Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ohio	-	-	-	-	-	-	-	-	32	-	27	782	-	714	495	563
Oklahoma	-	-	-	-	-	-	-	-	813	-	564	797	-	780	559	673
Oregon	-	-	-	3,898	-	3,879	-	2,424	-	-	-	696	-	692	5,673	2,560
Pennsylvania	-	-	-	4,383	-	3,763	513	1,661	478	361	459	822	-	770	1,218	1,060
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	387	-	387	74	199
South Carolina	-	-	-	7,223	-	7,223	4,995	5,906	-	-	-	721	-	721	144	380
South Dakota	-	-	-	13,094	-	13,094	-	5,601	-	-	-	1,183	-	1,183	54	537
Tennessee	-	-	-	7,410	-	7,131	1,785	4,078	-	-	-	3,741	-	3,600	978	2,103
Texas	-	-	-	1,711	-	1,485	853	1,084	-	-	-	784	1,805	910	1,231	1,114
Utah	-	-	-	-	-	-	-	-	-	-	-	877	-	802	474	590
Vermont	-	-	-	-	-	-	-	-	390	-	314	1,710	-	1,403	681	1,043
Virginia	-	-	-	5,841	-	5,227	-	2,351	532	-	437	2,334	-	2,135	338	1,146
Washington	-	-	-	-	-	-	-	-	-	-	-	1,010	-	1,010	1,353	1,164
West Virginia	-	-	-	-	-	-	4,569	2,444	13	2,703	638	546	-	570	956	777
Wisconsin	-	-	-	-	-	-	8,379	3,830	-	-	-	823	-	823	756	792
Wyoming	-	520,833	84,459	-	-	29,830	-	14,629	-	-	-	115	-	75	517	300
Combined rate	1,277	8,811	2,970	2,208	7,898	2,390	754	1,400	356	722	438	1,122	980	1,062	780	891

TABLE A-25. - Injury experience and worktime data by general work location at stone quarries and mills in the United States, by State, 1970 - Continued

State	Active operations			Average men working daily							Average days active				
	Underground mines	Surface mines	Mills	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines	Open quarries	Other surface mining	Total mining activities	Mills
				Underground	Surface	Total										
Alabama	2	66	57	35	7	42	717	26	785	1,646	2,431	273	245	321	249	289
Alaska	-	25	21	-	-	-	323	-	323	68	391	-	204	-	204	204
Arizona	-	93	37	-	-	-	199	-	199	288	487	-	224	-	224	317
Arkansas	3	89	50	34	28	62	458	-	520	818	1,338	286	257	-	261	296
California	4	207	107	119	25	144	1,094	44	1,282	3,099	4,381	236	235	243	236	332
Colorado	1	160	33	2	-	2	383	-	385	298	683	10	197	-	196	311
Connecticut	-	26	17	-	-	-	157	-	157	251	408	-	242	-	242	247
Florida	-	94	67	-	-	-	1,072	63	1,135	1,327	2,462	-	268	189	264	311
Georgia	6	81	80	53	12	65	1,049	-	1,114	1,734	2,848	261	251	-	251	264
Hawaii	-	40	24	-	-	-	281	-	281	261	542	-	256	-	256	319
Idaho	1	28	13	10	3	13	207	-	220	109	329	296	181	-	187	177
Illinois	11	240	163	142	35	177	1,314	-	1,491	2,032	3,523	271	251	-	253	284
Indiana	2	134	112	10	4	14	1,155	-	1,169	1,927	3,096	256	239	-	239	295
Iowa	10	268	126	68	16	84	1,075	-	1,159	1,307	2,466	267	239	-	241	300
Kansas	5	172	90	65	18	83	596	-	679	851	1,530	245	269	-	266	275
Kentucky	25	93	114	326	156	482	1,001	-	1,483	596	2,079	242	238	-	239	251
Louisiana	-	9	13	-	-	-	85	195	280	285	565	-	260	333	311	327
Maine	1	11	8	8	4	12	50	-	62	133	195	218	256	-	249	336
Maryland	2	41	43	12	3	15	598	7	620	837	1,457	176	255	329	254	296
Massachusetts	-	35	36	-	-	-	314	-	314	404	718	-	216	-	216	256
Michigan	1	59	47	4	1	5	797	1	803	2,173	2,976	240	256	8	256	309
Minnesota	-	95	60	-	-	-	407	-	407	885	1,292	-	195	-	195	257
Mississippi	-	4	3	-	-	-	28	-	28	97	125	-	240	-	240	203
Missouri	37	214	198	336	84	420	1,433	-	1,853	2,328	4,181	279	238	-	247	293
Montana	-	44	40	-	-	-	270	-	270	189	459	-	240	-	240	276
Nebraska	2	34	24	11	3	14	288	-	302	298	600	282	251	-	252	322
Nevada	-	21	15	-	-	-	159	-	159	135	294	-	240	-	240	326
New Hampshire	-	6	5	-	-	-	52	-	52	120	172	-	220	-	220	244
New Jersey	-	34	34	-	-	-	517	-	517	429	946	-	243	-	243	258
New Mexico	-	68	63	-	-	-	151	-	151	96	247	-	199	-	199	297
New York	2	103	102	13	3	16	1,183	-	1,199	1,860	3,059	240	228	-	228	302
North Carolina	-	110	83	-	-	-	1,206	-	1,206	867	2,073	-	248	-	248	262
North Dakota	-	7	1	-	-	-	3	-	3	1	4	-	237	-	237	223
Ohio	4	196	179	177	26	203	1,578	-	1,781	3,601	5,382	204	255	-	249	283
Oklahoma	2	100	75	31	13	44	653	-	697	594	1,291	295	251	-	254	283
Oregon	2	285	187	5	2	7	919	-	926	499	1,425	136	209	-	209	232
Pennsylvania	11	269	242	367	64	431	2,682	-	3,113	4,788	7,901	253	243	-	244	296
Rhode Island	-	4	2	-	-	-	19	-	19	24	43	-	224	-	224	272
South Carolina	-	21	16	-	-	-	369	-	369	455	824	-	257	-	257	315
South Dakota	-	38	22	-	-	-	224	-	224	300	524	-	244	-	244	237
Tennessee	4	133	124	24	18	42	1,179	-	1,221	1,460	2,681	247	236	-	236	273
Texas	2	228	169	7	1	8	1,416	138	1,562	2,704	4,266	252	271	339	277	318
Utah	1	37	16	5	5	10	159	-	169	219	388	307	204	-	210	300
Vermont	4	37	29	111	27	138	540	-	678	613	1,291	259	241	-	245	256
Virginia	4	137	122	132	24	156	1,457	-	1,613	1,925	3,538	299	247	-	252	269
Washington	-	274	100	-	-	-	612	-	612	379	991	-	183	-	183	241
West Virginia	8	46	43	112	33	145	419	-	564	618	1,182	258	244	-	248	264
Wisconsin	-	392	151	-	-	-	997	-	997	714	1,711	-	198	-	198	247
Wyoming	1	49	10	31	6	37	94	-	131	84	215	240	169	-	189	306
Total or average	158	4,957	3,373	2,250	621	2,871	31,939	474	35,284	46,726	82,010	256	240	306	242	290

TABLE A-25. - Injury experience and worktime data by general work location at stone quarries and mills in the United States, by State, 1970 - Continued

State	Man-days worked								Man-hours worked							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
Alabama	9,545	1,934	11,479	175,498	8,334	195,311	476,217	671,528	74,954	15,223	90,177	1,471,098	93,070	1,654,345	3,914,988	5,569,333
Alaska	-	-	-	65,753	-	65,753	13,862	79,615	-	-	-	590,332	-	590,332	124,756	715,088
Arizona	-	-	-	44,545	-	44,545	91,233	135,778	-	-	-	356,950	-	356,950	731,362	1,088,312
Arkansas	9,590	8,168	17,758	117,894	-	135,652	242,359	378,011	78,604	70,349	148,953	1,031,506	-	1,180,459	2,028,024	3,208,483
California	27,183	6,783	33,966	257,325	10,691	301,982	1,029,734	1,331,716	217,719	54,016	271,735	2,083,433	85,531	2,440,699	8,273,855	10,714,554
Colorado	20	-	20	75,452	-	75,472	92,768	168,240	160	-	160	635,588	-	635,748	749,012	1,384,760
Connecticut	-	-	-	38,052	-	38,052	62,019	100,071	-	-	-	310,451	-	310,451	501,272	811,723
Florida	-	-	-	287,320	11,902	299,222	412,768	711,990	-	-	-	2,605,908	110,001	2,715,909	3,549,817	6,265,726
Georgia	13,819	3,131	16,950	263,026	-	279,976	457,025	737,001	130,698	29,593	160,291	2,339,046	-	2,499,337	3,946,679	6,446,016
Hawaii	-	-	-	71,883	-	71,883	83,328	155,211	-	-	-	613,923	-	613,923	659,566	1,273,489
Idaho	3,077	769	3,846	37,366	-	41,212	19,340	60,552	24,607	6,152	30,759	301,901	-	332,660	155,983	488,643
Illinois	38,446	9,518	47,964	329,815	-	377,779	576,791	954,570	334,827	86,064	420,891	2,809,633	-	3,230,524	4,768,528	7,999,052
Indiana	2,552	1,032	3,584	275,518	-	279,102	569,228	848,330	22,910	8,881	31,791	2,317,112	-	2,348,903	4,653,656	7,002,559
Iowa	17,915	4,485	22,400	257,254	-	279,654	392,185	671,839	151,129	39,431	190,560	2,313,858	-	2,504,418	3,335,116	5,839,534
Kansas	16,120	4,248	20,368	160,031	-	180,399	234,246	414,645	138,340	35,959	174,299	1,349,835	-	1,524,134	1,917,601	3,441,735
Kentucky	78,575	37,828	116,403	238,182	-	354,585	149,348	503,933	640,549	307,132	947,681	2,034,082	-	2,981,763	1,252,715	4,234,478
Louisiana	-	-	-	22,076	64,938	87,014	93,313	180,327	-	-	-	176,609	695,481	872,090	790,715	1,662,805
Maine	1,796	822	2,618	12,811	-	15,429	44,633	60,062	16,169	7,394	23,563	107,621	-	131,184	363,491	494,675
Maryland	2,061	572	2,633	152,532	2,305	157,470	247,982	405,452	18,052	4,900	22,952	1,302,058	20,748	1,345,758	2,010,389	3,356,147
Massachusetts	-	-	-	67,856	-	67,856	103,297	171,153	-	-	-	562,486	-	562,486	841,684	1,404,170
Michigan	960	240	1,200	204,352	8	205,560	670,735	876,295	7,680	1,920	9,600	1,688,573	60	1,698,233	5,423,288	7,121,521
Minnesota	-	-	-	79,304	-	79,304	227,495	306,799	-	-	-	694,344	-	694,344	1,998,217	2,692,561
Mississippi	-	-	-	6,713	-	6,713	19,674	26,387	-	-	-	56,310	-	56,310	157,913	214,223
Missouri	94,061	23,208	117,269	340,378	-	457,647	681,745	1,139,392	756,602	187,391	943,993	2,864,722	-	3,808,715	5,508,189	9,316,904
Montana	-	-	-	64,807	-	64,807	52,076	116,883	-	-	-	525,252	-	525,252	417,133	942,385
Nebraska	3,137	818	3,955	72,276	-	76,231	96,102	172,333	31,372	8,180	39,552	641,185	-	680,737	794,817	1,475,554
Nevada	-	-	-	38,093	-	38,093	44,003	82,096	-	-	-	324,675	-	324,675	355,970	680,645
New Hampshire	-	-	-	11,424	-	11,424	29,304	40,728	-	-	-	91,793	-	91,793	237,912	329,705
New Jersey	-	-	-	125,476	-	125,476	110,651	236,127	-	-	-	1,035,817	-	1,035,817	943,832	1,979,649
New Mexico	-	-	-	30,030	-	30,030	28,487	58,517	-	-	-	241,973	-	241,973	229,633	471,606
New York	3,106	726	3,832	269,668	-	273,500	560,952	834,452	24,846	5,808	30,654	2,233,735	-	2,264,389	4,560,488	6,824,877
North Carolina	-	-	-	299,518	-	299,518	227,335	526,853	-	-	-	2,531,906	-	2,531,906	1,888,817	4,420,723
North Dakota	-	-	-	710	-	710	223	933	-	-	-	5,678	-	5,678	1,784	7,462
Ohio	35,528	5,900	41,428	401,914	-	443,342	1,020,464	1,463,806	284,222	47,202	331,424	3,382,360	-	3,713,784	8,318,512	12,032,296
Oklahoma	9,107	3,884	12,991	164,109	-	177,100	168,022	345,122	75,014	33,228	108,242	1,358,729	-	1,466,971	1,382,004	2,848,975
Oregon	672	280	952	192,238	-	193,190	115,910	309,100	5,375	2,240	7,615	1,539,204	-	1,546,819	928,257	2,475,076
Pennsylvania	92,108	16,980	109,088	650,447	-	759,535	1,416,477	2,176,012	755,984	146,919	902,903	5,475,819	-	6,378,722	11,687,116	18,065,838
Rhode Island	-	-	-	4,248	-	4,248	6,516	10,764	-	-	-	36,192	-	36,192	54,288	90,480
South Carolina	-	-	-	94,754	-	94,754	143,160	237,914	-	-	-	830,733	-	830,733	1,201,243	2,031,976
South Dakota	-	-	-	54,757	-	54,757	71,212	125,969	-	-	-	458,233	-	458,233	613,032	1,071,265
Tennessee	5,770	4,604	10,374	277,754	-	288,128	398,112	686,240	50,707	44,223	94,930	2,429,088	-	2,524,018	3,360,583	5,884,601
Texas	1,772	244	2,016	384,096	46,819	432,931	858,567	1,291,498	16,680	2,440	19,120	3,505,763	514,549	4,039,432	7,034,720	11,074,152
Utah	1,535	1,535	3,070	32,468	-	35,538	65,599	101,137	12,280	12,280	24,560	262,169	-	286,729	523,605	810,334
Vermont	28,744	6,992	35,736	130,300	-	166,036	156,900	322,936	238,319	58,028	296,347	1,049,673	-	1,346,020	1,335,426	2,681,446
Virginia	39,289	7,334	46,623	360,550	-	407,173	517,046	924,219	297,156	64,792	361,948	3,081,424	-	3,443,372	4,212,429	7,655,801
Washington	-	-	-	111,894	-	111,894	91,195	203,089	-	-	-	895,997	-	895,997	729,257	1,625,254
West Virginia	28,715	8,688	37,403	102,246	-	139,649	163,371	303,020	233,640	70,665	304,305	837,279	-	1,141,584	1,313,316	2,454,900
Wisconsin	-	-	-	197,014	-	197,014	176,251	373,265	-	-	-	1,701,316	-	1,701,316	1,432,158	3,133,474
Wyoming	7,440	1,440	8,880	15,843	-	24,723	25,717	50,440	59,520	11,520	71,040	130,099	-	201,139	209,013	410,152
Total	572,643	162,163	734,806	7,667,570	144,997	8,547,373	13,534,977	22,082,350	4,698,115	1,361,930	6,060,045	65,223,471	1,519,440	72,802,956	111,422,161	184,225,117

TABLE A-26. - Injury experience and worktime data on officeworkers at stone quarries and mills in the United States, by kind of stone, 1970

Kind of stone	Injuries			Frequency rates per million man-hours			Severity rates per million man-hours			Average men working daily	Average days active	Man-days worked	Man-hours worked
	Fatal	Nonfatal	Total	Fatal	Nonfatal	Total	Fatal	Nonfatal	Total				
Cement 1/	-	1	1	-	0.22	0.22	-	2	2	2,121	264	559,243	4,477,802
Granite	-	3	3	-	2.84	2.84	-	34	34	487	256	124,476	1,056,304
Limestone	-	5	5	-	.83	.83	-	13	13	2,766	260	718,872	6,011,263
Limestone (chief product, lime)	-	2	2	-	1.25	1.25	-	11	11	762	261	199,141	1,597,802
Marble	-	-	-	-	-	-	-	-	-	191	252	48,091	387,052
Sandstone	-	2	2	-	2.21	2.21	-	19	19	446	252	112,209	905,825
Slate	-	-	-	-	-	-	-	-	-	56	251	14,032	108,662
Traprock	-	-	-	-	-	-	-	-	-	308	232	71,483	578,087
Miscellaneous stone	-	-	-	-	-	-	-	-	-	121	244	29,580	239,074
Total or average	-	13	13	-	.85	.85	-	10	10	7,258	259	1,877,127	15,361,871

1/ Includes limestone or other stones used in manufacturing cement.

TABLE A-27. - Injury experience and worktime data on officeworkers at stone quarries and mills in the United States, by State, 1970

State	Injuries			Frequency rates per million man-hours			Severity rates per million man-hours			Average men working	Average days active	Man-days worked	Man-hours worked
	Fatal	Nonfatal	Total	Fatal	Nonfatal	Total	Fatal	Nonfatal	Total				
Alabama	-	-	-	-	-	-	-	-	-	227	257	58,299	469,476
Arizona	-	-	-	-	-	-	-	-	-	23	285	6,561	50,298
Arkansas	-	-	-	-	-	-	-	-	-	122	262	31,946	254,207
California	-	1	1	-	1.03	1.03	-	4	4	474	256	121,470	971,743
Colorado	-	1	1	-	15.45	15.45	-	216	216	35	236	8,269	64,737
Connecticut	-	-	-	-	-	-	-	-	-	41	248	10,181	80,585
Florida	-	1	1	-	3.09	3.09	-	93	93	156	255	39,816	323,535
Georgia	-	-	-	-	-	-	-	-	-	219	255	55,864	459,260
Hawaii	-	-	-	-	-	-	-	-	-	51	249	12,717	101,776
Idaho	-	-	-	-	-	-	-	-	-	9	171	1,542	11,528
Illinois	-	1	1	-	1.21	1.21	-	23	23	364	276	100,497	824,798
Indiana	-	1	1	-	1.35	1.35	-	28	28	341	265	90,341	741,062
Iowa	-	-	-	-	-	-	-	-	-	179	258	46,190	381,179
Kansas	-	-	-	-	-	-	-	-	-	128	262	33,539	277,853
Kentucky	-	-	-	-	-	-	-	-	-	201	264	53,138	444,313
Louisiana	-	-	-	-	-	-	-	-	-	43	249	10,716	85,731
Maine	-	-	-	-	-	-	-	-	-	17	257	4,364	35,157
Maryland	-	-	-	-	-	-	-	-	-	113	262	29,613	251,911
Massachusetts	-	-	-	-	-	-	-	-	-	105	247	25,908	206,001
Michigan	-	-	-	-	-	-	-	-	-	348	271	94,462	757,923
Minnesota	-	1	1	-	3.13	3.13	-	88	88	145	256	37,071	319,872
Mississippi	-	-	-	-	-	-	-	-	-	6	234	1,404	11,234
Missouri	-	-	-	-	-	-	-	-	-	439	271	119,026	968,330
Montana	-	-	-	-	-	-	-	-	-	22	235	5,164	41,311
Nebraska	-	-	-	-	-	-	-	-	-	40	261	10,430	86,172
Nevada	-	-	-	-	-	-	-	-	-	23	266	6,108	48,865
New Hampshire	-	-	-	-	-	-	-	-	-	27	253	6,820	54,560
New Jersey	-	1	1	-	5.08	5.08	-	20	20	114	218	24,822	196,778
New Mexico	-	-	-	-	-	-	-	-	-	6	244	1,462	11,694
New York	-	-	-	-	-	-	-	-	-	297	254	75,483	631,039
North Carolina	-	-	-	-	-	-	-	-	-	99	248	24,562	210,221
Ohio	-	-	-	-	-	-	-	-	-	677	254	172,004	1,391,937
Oklahoma	-	-	-	-	-	-	-	-	-	53	254	13,450	111,104
Oregon	-	1	1	-	15.79	15.79	-	111	111	35	226	7,914	63,322
Pennsylvania	-	2	2	-	1.34	1.34	-	11	11	706	257	181,474	1,488,528
Rhode Island	-	-	-	-	-	-	-	-	-	5	242	1,212	9,192
South Carolina	-	-	-	-	-	-	-	-	-	43	260	11,186	90,526
South Dakota	-	-	-	-	-	-	-	-	-	36	232	8,336	67,354
Tennessee	-	-	-	-	-	-	-	-	-	233	251	58,495	516,966
Texas	-	3	3	-	3.63	3.63	-	16	16	377	266	100,384	826,778
Utah	-	-	-	-	-	-	-	-	-	20	230	4,605	36,158
Vermont	-	-	-	-	-	-	-	-	-	21	259	5,437	43,332
Virginia	-	-	-	-	-	-	-	-	-	328	263	86,307	718,467
Washington	-	-	-	-	-	-	-	-	-	72	278	19,983	159,399
West Virginia	-	-	-	-	-	-	-	-	-	89	265	23,565	188,649
Wisconsin	-	-	-	-	-	-	-	-	-	137	233	31,865	251,388
Wyoming	-	-	-	-	-	-	-	-	-	12	260	3,125	25,622
Total or average	-	13	13	-	.85	.85	-	10	10	7,258	259	1,877,127	15,361,871

APPENDIX B.--TABLES FOR 1971

TABLE B-1. - Injury experience by degree and worktime data on stone quarries and mills in the United States, by general work location, 1971

General work location	Injuries						Frequency rates per million man-hours			Severity rates per million man-hours			Active operations	Average men working daily	Average days active	Man-days worked	Man-hours worked
	Fatal	Nonfatal				All injuries	Fatal	Non-fatal	All injuries	Fatal	Non-fatal	All injuries					
		Permanent		Temporary total	Total non-fatal												
		Total	Partial														
Underground mines:																	
Underground	6	-	-	130	130	136	1.40	30.31	31.71	8,393	824	9,217	162	2,038	256	521,922	4,289,173
Surface	1	-	1	60	61	62	.79	48.24	49.03	4,745	1,293	6,038	-	584	258	150,622	1,264,592
Total or average	7	-	1	190	191	198	1.26	34.39	35.65	7,562	931	8,493	162	2,622	256	672,544	5,553,765
Open quarries	30	1	34	1,478	1,513	1,543	.46	23.20	23.66	2,760	963	3,724	4,990	32,720	234	7,672,775	65,209,445
Other surface mining	-	-	2	78	80	80	-	59.35	59.35	-	1,404	1,404	27	422	315	133,055	1,348,008
Total or average, mining	37	1	37	1,746	1,784	1,821	.51	24.74	25.25	3,079	969	4,048	5,179	35,764	237	8,478,374	72,111,218
Mills	21	1	63	2,045	2,109	2,130	.19	18.75	18.93	1,120	854	1,974	3,558	47,042	290	13,647,557	112,503,948
Grand total or average	58	2	100	3,791	3,893	3,951	.31	21.09	21.40	1,885	899	2,784	8,737	82,806	267	22,125,931	184,615,166

TABLE B-2. - Number and average severity of injuries by degree at stone quarries and mills in the United States, by general work location and detailed cause, 1971

General work location and detailed cause of injury	Injuries						Average severity		
	Fatal	Nonfatal				All injuries	Permanent partial	Temporary total	All injuries
		Permanent		Temporary total	Total nonfatal				
		Total	Partial						
UNDERGROUND MINES									
Underground:									
Falls of roof or back:									
While mining	-	-	-	2	2	2	-	22	22
While testing or barring down back	-	-	-	2	2	2	-	32	32
All other	1	-	-	-	-	1	-	-	6,000
Falls of face or side:									
While mining	-	-	-	7	7	7	-	25	25
All other	-	-	-	1	1	1	-	1	1
Sliding or falling material or objects:									
From car, bin, platform, or chute	-	-	-	2	2	2	-	22	22
Falling cage	4	-	-	-	-	4	-	-	6,000
From stockpile, dump, or gob	-	-	-	4	4	4	-	12	12
Slips or falls of persons:									
On same level:									
While handling material	-	-	-	5	5	5	-	4	4
While operating or moving machinery	-	-	-	3	3	3	-	2	2
All other	-	-	-	3	3	3	-	5	5
From an elevation:									
While handling material	-	-	-	4	4	4	-	50	50
While operating or moving machinery	-	-	-	3	3	3	-	5	5
Caused by failure of scaffold, ladder, or other support	-	-	-	3	3	3	-	49	49
All other	-	-	-	4	4	4	-	76	76
Handling material:									
Prop, stull, or timber	-	-	-	2	2	2	-	8	8
Ore, valuable mineral	-	-	-	10	10	10	-	14	14
Rock or waste	-	-	-	1	1	1	-	3	3
Rail	-	-	-	1	1	1	-	22	22
Wire or wire rope	-	-	-	2	2	2	-	19	19
Flying particle while handling material	-	-	-	2	2	2	-	1	1
All other	-	-	-	19	19	19	-	21	21
Handtools:									
Hammer or sledge	-	-	-	4	4	4	-	18	18
Flying particle from tool or object worked on	-	-	-	1	1	1	-	1	1
All other	-	-	-	1	1	1	-	16	16
Stepping or kneeling on sharp or loose objects: Stepping on loose object	-	-	-	1	1	1	-	12	12
Striking or bumping against objects	-	-	-	2	2	2	-	36	36
Haulage:									
Cages, cars, or motors:									
Squeezed between cage, car, or motor, and other object:									
Pulling, pushing, or dropping	-	-	-	1	1	1	-	3	3
Operating or riding	-	-	-	1	1	1	-	37	37
All other	-	-	-	1	1	1	-	35	35
Falling, slipping, or jumping into or from	-	-	-	1	1	1	-	157	157
Railroad cars and locomotives	-	-	-	3	3	3	-	3	3
Automobiles, gasoline or diesel trucks:									
While operating	-	-	-	2	2	2	-	12	12
Slip or fall on or from	-	-	-	3	3	3	-	25	25
Miscellaneous haulage:									
Riding or getting on or off conveyor belt	-	-	-	1	1	1	-	4	4
Explosives:									
Misfire or digging into unexploded hole	1	-	-	-	-	1	-	-	6,000
Machinery:									
Belt conveyor	-	-	-	1	1	1	-	6	6
Chain, bucket, shaker, or screw conveyor	-	-	-	1	1	1	-	3	3
Power drill, rotary or percussive (except rock bolting)	-	-	-	9	9	9	-	15	15
Power shovel, dragline, bulldozer, etc.	-	-	-	3	3	3	-	128	128
Stationary machinery	-	-	-	1	1	1	-	49	49
While moving any machine except mining or loading	-	-	-	3	3	3	-	68	68
Particle set in motion by machinery (except rock bolting)	-	-	-	2	2	2	-	2	2
Fires or suffocation from fires:									
Oil, gasoline, other flammable liquid	-	-	-	2	2	2	-	204	204
All other	-	-	-	1	1	1	-	10	10
Miscellaneous causes:									
Acetylene or electric welding or cutting	-	-	-	1	1	1	-	1	1
Irritation or burn from caustic or acid	-	-	-	1	1	1	-	10	10
Burn from controlled fire	-	-	-	1	1	1	-	9	9
All other	-	-	-	1	1	1	-	22	22
Penumoconiosis	-	-	-	1	1	1	-	56	56
Total or average, underground	6	-	-	130	130	136	-	27	291
Surface at underground:									
Sliding or falling material or objects: Falling cage	-	-	-	1	1	1	-	4	4
Slips or falls of persons:									
On same level	-	-	-	2	2	2	-	6	6
From an elevation: While handling material	-	-	-	2	2	2	-	63	63
Handling material:									
Ore, valuable mineral	-	-	-	1	1	1	-	73	73
Rock or waste	-	-	-	1	1	1	-	1	1
Flying particle while handling material	-	-	-	1	1	1	-	1	1
All other	-	-	-	11	11	11	-	23	23
Handtools: Hammer or sledge	-	-	-	2	2	2	-	2	2
Stepping or kneeling on sharp or loose objects: Stepping on loose object	-	-	-	1	1	1	-	44	44
Striking or bumping against objects	-	-	-	1	1	1	-	45	45

TABLE B-2. - Number and average severity of injuries by degree at stone quarries and mills in the United States, by general work location and detailed cause, 1971 - Continued

General work location and detailed cause of injury	Injuries						Average severity		
	Fatal	Nonfatal				All injuries	Permanent partial	Temporary total	All injuries
		Permanent		Temporary total	Total nonfatal				
		Total	Partial						
UNDERGROUND MINES - Continued									
Surface at underground - Continued									
Haulage:									
Shuttle cars, transloaders, and small mobile trucks	-	-	1	1	2	2	300	16	158
Railroad cars and locomotives	-	-	-	4	4	4	-	39	39
Automobiles, gasoline or diesel trucks:									
While operating	-	-	-	6	6	6	-	26	26
Slip or fall on or from	-	-	-	13	13	13	-	9	9
Miscellaneous haulage: Rope or cable on haulage	-	-	-	1	1	1	-	2	2
Explosives	-	-	-	2	2	2	-	80	80
Electricity: Cutout switch or junction box	-	-	-	1	1	1	-	18	18
Machinery: Power shovel, dragline, bulldozer, etc.	1	-	-	4	4	5	-	28	1,222
Miscellaneous causes:									
Acetylene or electric welding or cutting	-	-	-	2	2	2	-	6	6
Irritation or burn from caustic or acid	-	-	-	3	3	3	-	7	7
Total or average, surface at underground	1	-	1	60	61	62	300	22	123
Total or average, underground mines	7	-	1	190	191	198	300	26	238
OPEN QUARRIES									
Falls of face or side:									
While mining	-	-	1	3	4	4	300	40	105
While loading	1	-	-	1	1	2	-	19	3,010
All other	-	-	-	1	1	1	-	21	21
Sliding or falling material or objects:									
Dropped or thrown by coworker	-	-	-	1	1	1	-	1	1
From car, bin, platform, or chute	-	-	-	23	23	23	-	14	14
From stockpile, dump, or gob	-	-	-	4	4	4	-	10	10
All other	-	-	-	3	3	3	-	12	12
Slips or falls of persons:									
On same level:									
While handling material	-	-		44	44	44	-	16	16
Caused by handtool slipping or breaking	-	-	-	3	3	3	-	27	27
While operating or moving machinery	-	-	-	9	9	9	-	23	23
All other	-	-	-	68	68	68	-	26	26
From an elevation:									
While escaping another hazard	-	-	-	2	2	2	-	130	130
While handling material	1	-	2	35	37	38	138	34	196
Caused by handtool slipping or breaking	1	-	1	2	3	4	1,500	39	1,894
While operating or moving machinery	-	-	-	47	47	47	-	35	35
Caused by failure of scaffold, ladder, or other support	-	-	-	12	12	12	-	26	26
All other	2	-	-	60	60	62	-	24	217
Handling material:									
Prop, stull, or timber	-	-	1	5	6	6	50	20	25
Ore, valuable mineral	-	-	1	40	41	41	100	20	22
Rock or waste	-	-	1	66	67	67	35	21	21
Rail	-	-	-	4	4	4	-	50	50
Wire or wire rope	-	-	1	20	21	21	100	14	18
Conveyor pan	-	-	-	1	1	1	-	34	34
Flying particle while handling material	-	-	1	31	32	32	1,125	9	43
All other	1	-	5	234	239	240	105	24	51
Handtools:									
Pick	-	-	-	1	1	1	-	56	56
Axe, hatchet, or adz	-	-	-	2	2	2	-	22	22
Hammer or sledge	-	-	-	18	18	18	-	14	14
Crowbar or bar	-	-	-	25	25	25	-	23	23
Shovel	-	-	-	8	8	8	-	23	23
In hand of fellow worker	-	-	-	6	6	6	-	4	4
Flying particle from tool or object worked on	-	-	1	27	28	28	1,800	13	76
All other	-	-	-	24	24	24	-	24	24
Stepping or kneeling on sharp or loose objects:									
Stepping on sharp object	-	-	-	6	6	6	-	4	4
Stepping on loose object	-	-	-	40	40	40	-	15	15
While working on hands and knees	-	-	-	1	1	1	-	7	7
Striking or bumping against objects	-	-	-	15	15	15	-	9	9
Haulage:									
Skips, car, or motors:									
Struck, run over, or squeezed between:									
Pulling, pushing, or dropping	-	-	-	1	1	1	-	4	4
Operating or riding	-	-	-	1	1	1	-	71	71
Collision (while under control)	-	-	-	1	1	1	-	5	5
Runaway (while not under control)	-	-	-	3	3	3	-	46	46
Shuttle cars, transloaders, and small mobile trucks:									
Struck or run over	-	-	-	2	2	2	-	65	65
All other	-	-	-	7	7	7	-	48	48
Railroad cars and locomotives	-	-	-	20	20	20	-	43	43
Automobiles, gasoline or diesel trucks:									
While operating	5	1	3	114	118	123	463	33	334
Slip or fall on or from	-	-	1	102	103	103	120	37	38
Water transportation:									
Fall of person	-	-	-	1	1	1	-	3	3
Rope or chain on boat or barge	-	-	-	1	1	1	-	20	20
All other	-	-	-	1	1	1	-	5	5
Miscellaneous haulage:									
Rope or cable on haulage	-	-	-	4	4	4	-	28	28
Slip or strain from moving car by hand	-	-	-	1	1	1	-	5	5
Riding or getting on or off conveyor belt	-	-	-	1	1	1	-	71	71
Flying particle	-	-	-	2	2	2	-	7	7
All other	-	-	-	6	6	6	-	22	22

TABLE B-2. - Number and average severity of injuries by degree at stone quarries and mills in the United States, by general work location and detailed cause, 1971 - Continued

General work location and detailed cause of injury	Injuries						Average severity		
	Fatal	Nonfatal				All injuries	Permanent partial	Temporary total	All injuries
		Permanent		Temporary total	Total nonfatal				
		Total	Partial						
OPEN QUARRIES - Continued									
Explosions of gas or dust: Caused by electric arc	-	-	-	1	1	1	-	20	20
Explosives:									
Premature shot or blast	3	-	-	2	2	5	-	128	3,651
Charging or tamping	-	-	-	1	1	1	-	40	40
Misfire or digging into unexploded hole	-	-	-	2	2	2	-	2	2
Flying fragments	-	-	-	7	7	7	-	30	30
Transporting or handling explosive	-	-	-	2	2	2	-	110	110
All other	-	-	1	-	1	1	60	-	60
Electricity:									
Power or lighting circuit	1	-	-	-	-	1	-	-	6,000
Cutout switch or junction box	-	-	-	2	2	2	-	6	6
Cable, cable arc, or blowup	-	-	-	1	1	1	-	10	10
All other	-	-	-	2	2	2	-	12	12
Machinery:									
Belt conveyor	-	-	3	14	17	17	1,300	60	279
Chain, bucket, shaker, or screw conveyor	-	-	-	1	1	1	-	1	1
Power drill, rotary or percussive	2	-	3	51	54	56	967	24	288
Power shovel, dragline, bulldozer, etc.	6	-	2	74	76	82	1,800	35	515
Stationary machinery	1	-	4	16	20	21	140	27	333
While moving any machine except mining or losding	6	-	-	8	8	14	-	17	2,581
Particle set in motion by machinery	-	-	-	26	26	26	-	5	5
All other	-	-	2	13	15	15	242	22	51
Fires or suffocation from fires: Oil, gasoline, other flammable liquid	-	-	-	6	6	6	-	104	104
Miscellaneous causes:									
Flying particle from draft or wind	-	-	-	12	12	12	-	5	5
Acetylene or electric welding or cutting	-	-	-	22	22	22	-	9	9
Irritation or burn from caustic or acid	-	-	-	10	10	10	-	30	30
Burn from controlled fire	-	-	-	16	16	16	-	25	25
All other	-	-	-	28	28	28	-	24	24
Pneumoconiosis	-	-	-	1	1	1	-	71	71
Total or average, open quarries	30	1	34	1,478	1,513	1,543	554	26	157
OTHER SURFACE MINING									
Sliding or falling material or objects:									
From car, bin, platform, or chute	-	-	-	1	1	1	-	7	7
Falling equipment or machinery under repair	-	-	-	1	1	1	-	40	40
All other	-	-	-	1	1	1	-	9	9
Slips or falls of persons:									
On same level:									
While handling material	-	-	-	5	5	5	-	51	51
All other	-	-	-	3	3	3	-	26	26
Handling material:									
Prop, stull, or timber	-	-	-	1	1	1	-	18	18
Rail	-	-	-	1	1	1	-	23	23
Wire or wire rope	-	-	-	4	4	4	-	8	8
Flying particle while handling material	-	-	-	1	1	1	-	5	5
All other	-	-	-	17	17	17	-	31	31
Handtools:									
Hammer or sledge	-	-	-	3	3	3	-	6	6
Crowbar or bar	-	-	-	1	1	1	-	13	13
All other	-	-	-	2	2	2	-	34	34
Stepping or kneeling on sharp or loose objects:									
Stepping on sharp object	-	-	-	1	1	1	-	3	3
Stepping on loose object	-	-	-	1	1	1	-	5	5
Striking or bumping against objects	-	-	1	3	4	4	75	10	26
Haulage:									
Water transportation:									
Fall of person	-	-	-	10	10	10	-	26	26
Rope or chain on boat or barge	-	-	-	4	4	4	-	28	28
All other	-	-	-	4	4	4	-	6	6
Miscellaneous haulage: Rope or cable on haulage	-	-	-	1	1	1	-	20	20
Machinery:									
Belt Conveyor	-	-	-	1	1	1	-	21	21
Power shovel, dragline, bulldozer, etc.	-	-	-	2	2	2	-	34	34
Stationary machinery	-	-	-	1	1	1	-	10	10
All other	-	-	1	-	1	1	75	-	75
Miscellaneous causes:									
Flying particle from draft or wind	-	-	-	1	1	1	-	7	7
Acetylene or electric welding or cutting	-	-	-	3	3	3	-	12	12
Irritation or burn from caustic or acid	-	-	-	1	1	1	-	21	21
Burn from controlled fire	-	-	-	2	2	2	-	3	3
All other	-	-	-	2	2	2	-	12	12
Total or average, other surface mining	-	-	2	78	80	80	75	22	24
Total or average, mining	37	1	37	1,746	1,784	1,821	521	26	160

TABLE B-2. - Number and average severity of injuries by degree at stone quarries and mills in the United States, by general work location and detailed cause, 1971 - Continued

General work location and detailed cause of injury	Injuries						Average severity		
	Fatal	Nonfatal				All injuries	Permanent partial	Temporary total	All injuries
		Permanent		Temporary total	Total nonfatal				
		Total	Partial						
MILLS									
Sliding or falling material or objects:									
Dropped or thrown by coworker	-	-	-	5	5	5	-	20	20
From car, bin, platform, or chute	2	-	1	49	50	52	750	33	276
Falling equipment or machinery under repair	1	-	-	2	2	3	-	5	2,003
All other	1	-	-	9	9	10	-	20	618
Slips or falls of persons:									
On same level:									
While escaping another hazard	-	-	-	3	3	3	-	6	6
While handling material	-	-	1	69	70	70	150	20	22
Caused by handtool slipping or breaking	-	-	-	9	9	9	-	17	17
While operating or moving machinery	-	-	-	8	8	8	-	25	25
All other	-	-	-	91	91	91	-	28	28
From an elevation:									
While escaping another hazard	-	-	-	3	3	3	-	29	29
While handling material	2	1	-	52	53	55	-	48	373
Caused by handtool slipping or breaking	-	-	1	3	4	4	1,680	18	434
Caused by electric current	-	-	-	2	2	2	-	44	44
While operating or moving machinery	-	-	-	23	23	23	-	46	46
Caused by failure of scaffold, ladder, or other support	1	-	-	28	28	29	-	42	247
All other	-	-	1	88	89	89	200	40	42
Handling material:									
Prop, stull, or timber	-	-	-	24	24	24	-	21	21
Ore, valuable mineral	2	-	2	151	153	155	318	18	99
Rock or waste	-	-	-	60	60	60	-	31	31
Rail	-	-	1	11	12	12	50	28	29
Wire or wire rope	-	-	-	18	18	18	-	14	14
Flying particle while handling material	-	-	-	43	43	43	-	5	5
All other	-	-	8	382	390	390	258	22	27
Handtools:									
Hammer or sledge	-	-	1	39	40	40	50	10	11
Crowbar or bar	-	-	3	35	38	38	715	23	78
Shovel	-	-	1	3	4	4	50	4	16
Saw	-	-	1	1	2	2	170	20	95
In hand of fellow worker	-	-	-	5	5	5	-	14	14
Flying particle from tool or object worked on	-	-	-	23	23	23	-	22	22
All other	-	-	2	29	31	31	130	13	20
Stepping or kneeling on sharp or loose objects:									
Stepping on sharp object	-	-	-	11	11	11	-	5	5
Stepping on loose object	-	-	-	27	27	27	-	24	24
Striking or bumping against objects	-	-	-	42	42	42	-	22	22
Haulage:									
Cages, cars, or motors:									
Squeezed between cage, car, or motor, and other object:									
Operating or riding	-	-	-	1	1	1	-	43	43
All other	-	-	-	2	2	2	-	96	96
Derailment	-	-	-	1	1	1	-	21	21
Collision (while under control)	-	-	-	1	1	1	-	24	24
Shuttle cars, transloaders, and small mobile trucks	-	-	-	2	2	2	-	8	8
Railroad cars and locomotives	2	-	1	71	72	74	3,000	35	237
Automobiles, gasoline or diesel trucks:									
While operating	1	-	1	43	44	45	3,000	29	228
Slip or fall on or from	-	-	-	44	44	44	-	25	25
Miscellaneous haulage:									
Rope or cable on haulage	-	-	-	5	5	5	-	43	43
Slip or strain from moving car by hand	-	-	-	2	2	2	-	18	18
Riding or getting on or off conveyor belt	1	-	-	1	1	2	-	18	3,009
All other	-	-	1	13	14	14	50	26	27
Explosions of gas or dust:									
Explosion of gas or dust on surface of deep mine or in strip pit	1	-	-	-	-	1	-	-	6,000
All other	-	-	-	2	2	2	-	64	64
Explosives:									
Blowout or "shotgun" blast	-	-	-	1	1	1	-	2	2
Flying fragments	1	-	-	1	1	2	-	10	3,005
All other	-	-	-	1	1	1	-	11	11
Electricity:									
Transformer, generator, or stationary motor	-	-	-	1	1	1	-	21	21
Power or lighting circuit	1	-	-	2	2	3	-	47	2,031
Cutout switch or junction box	-	-	1	18	19	19	100	23	27
All other	-	-	-	1	1	1	-	8	8
Machinery:									
Belt conveyor	2	-	9	60	69	71	237	38	231
Chain, bucket, shaker, or screw conveyor	-	-	2	10	12	12	3,300	46	588
Power drill, rotary or percussive	-	-	1	18	19	19	1,800	18	112
Power shovel, dragline, bulldozer, etc.	2	-	2	42	44	46	1,650	42	371
Stationary machinery	1	-	18	75	93	94	496	40	190
While moving any machine except mining or loading	-	-	-	16	16	16	-	27	27
Particle set in motion by machinery	-	-	1	25	26	26	50	17	18
All other	-	-	2	9	11	11	788	14	155
Fires or suffocation from fires:									
Oil, gasoline, other flammable liquid	-	-	-	6	6	6	-	57	57
All Other	-	-	-	2	2	2	-	85	85
Miscellaneous causes:									
Flying particle from draft or wind	-	-	-	5	5	5	-	5	5
Acetylene or electric welding or cutting	-	-	-	42	42	42	-	6	6
Irritation or burn from caustic or acid	-	-	-	106	106	106	-	12	12
Burn from controlled fire	-	-	-	37	37	37	-	20	20
All other	-	-	1	29	30	30	75	14	16
Pneumoconiosis	-	-	-	2	2	2	-	4	4
Total or average, mills	21	1	63	2,045	2,109	2,130	616	25	104
Grand total or average	58	2	100	3,791	3,893	3,951	581	25	130

TABLE B-3. - Fatal injuries and distribution by part of body injured at stone quarries and mills in the United States, by general work location [1/] and detailed cause, 1971

General work location and detailed cause	Injuries										Percentage distribution
	Head, face, neck (excl. eye)	Eye	Trunk	Arm (above wrist)	Wrist, hand, fingers	Leg (above ankle)	Ankle, foot, toes	Multiple	Unclassified (no data)	Total	
UNDERGROUND MINES											
Underground:											
Falls of roof or back	-	-	-	-	-	-	-	1	-	1	16.67
Sliding or falling material or objects: Falling cage	-	-	-	-	-	-	-	4	-	4	66.67
Explosives: Misfire or digging into unexploded hole	-	-	1	-	-	-	-	-	-	1	16.67
Total, underground	-	-	1	-	-	-	-	5	-	6	-
Percentage distribution	-	-	16.67	-	-	-	-	83.33	-	-	-
Surface at underground:											
Machinery: Power shovel, dragline, bulldozer, etc.	-	-	1	-	-	-	-	-	-	1	100.00
Total, surface at underground	-	-	1	-	-	-	-	-	-	1	-
Percentage distribution	-	-	100.00	-	-	-	-	-	-	-	-
Total, underground mines	-	-	2	-	-	-	-	5	-	7	-
Percentage distribution	-	-	28.57	-	-	-	-	71.43	-	-	-
OPEN QUARRIES											
Falls of face or side: While loading	-	-	-	-	-	-	-	1	-	1	3.33
Slips or falls of persons:											
From an elevation:											
While handling material	-	-	-	-	-	-	-	1	-	1	3.33
Caused by handtool slipping or breaking	-	-	1	-	-	-	-	-	-	1	3.33
All other	1	-	1	-	-	-	-	-	-	2	6.67
Handling material	1	-	-	-	-	-	-	-	-	1	3.33
Haulage:											
Automobiles, gasoline or diesel trucks: While operating	-	-	-	-	-	-	-	5	-	5	16.67
Explosives: Premature shot or blast	-	-	-	-	-	-	-	3	-	3	10.00
Electricity: Power or lighting circuit	-	-	-	-	-	-	-	1	-	1	3.33
Machinery:											
Power drill, rotary or percussive	1	-	1	-	-	-	-	-	-	2	6.67
Power shovel, dragline, bulldozer, etc.	2	-	-	-	-	-	-	4	-	6	20.00
Stationary machinery	1	-	-	-	-	-	-	-	-	1	3.33
While moving any machine except mining or loading	1	-	1	-	-	-	-	4	-	6	20.00
Total, open quarries	7	-	4	-	-	-	-	19	-	30	-
Percentage distribution	23.33	-	13.33	-	-	-	-	63.33	-	-	-
Total, mining	7	-	6	-	-	-	-	24	-	37	-
Percentage distribution	18.92	-	16.22	-	-	-	-	64.86	-	-	-
MILLS											
Sliding or falling material or objects:											
From car, bin, platform, or chute	-	-	2	-	-	-	-	-	-	2	9.52
Falling equipment or machinery under repair	-	-	1	-	-	-	-	-	-	1	4.76
All other	-	-	1	-	-	-	-	-	-	1	4.76
Slips or falls of persons:											
From an elevation:											
While handling material	-	-	-	-	-	-	-	2	-	2	9.52
Caused by failure of scaffold, ladder, or other support	-	-	1	-	-	-	-	-	-	1	4.76
Handling material: Ore, valuable mineral	-	-	2	-	-	-	-	-	-	2	9.52
Haulage:											
Railroad cars and locomotives	-	-	1	-	-	-	-	1	-	2	9.52
Automobiles, gasoline or diesel trucks: While operating	-	-	-	-	-	-	-	1	-	1	4.76
Miscellaneous haulage: Riding or getting on or off conveyor belt	1	-	-	-	-	-	-	-	-	1	4.76
Explosions of gas or dust: Explosion of gas or dust on surface of deep mine or in strip pit	1	-	-	-	-	-	-	-	-	1	4.76
Explosives: Flying fragments	1	-	-	-	-	-	-	-	-	1	4.76
Electricity: Power or lighting circuit	-	-	-	-	-	-	-	1	-	1	4.76
Machinery:											
Belt conveyor	-	-	-	1	-	-	-	1	-	2	9.52
Power shovel, dragline, bulldozer, etc.	1	-	1	-	-	-	-	-	-	2	9.52
Stationary machinery	-	-	1	-	-	-	-	-	-	1	4.76
Total, mills	4	-	10	1	-	-	-	6	-	21	-
Percentage distribution	19.05	-	47.62	4.76	-	-	-	28.57	-	-	-
Grand total	11	-	16	1	-	-	-	30	-	58	-
Percentage distribution	18.97	-	27.59	1.72	-	-	-	51.72	-	-	-

1/ No fatal injuries were reported at other surface mining at stone quarries and mills.

TABLE B-4. - Injuries, distribution, average severity by degree, and injury rates at stone quarries and mills in the United States, by general work location and part of body injured, 1971

General work location and part of body injured	Injuries						Percentage distribution of all injuries 1/	Average severity			Frequency rates per million man-hours		Severity rates per million man-hours	
	Fatal	Nonfatal				All injuries		Permanent partial	Temporary total	All injuries	Fatal	Nonfatal	Fatal	Nonfatal
		Permanent		Temporary total	Total nonfatal									
		Total	Partial											
UNDERGROUND MINES														
Underground:														
Head, face, neck (excl. eye)	-	-	-	4	4	4	3.6	-	54	54	-	0.93	-	50
Eye	-	-	-	7	7	7	6.3	-	4	4	-	1.63	-	7
Trunk	1	-	-	31	31	32	28.8	-	37	224	0.23	7.23	1,399	269
Arm (above wrist)	-	-	-	3	3	3	2.7	-	27	27	-	.70	-	19
Wrist, hand, fingers	-	-	-	17	17	17	15.3	-	13	13	-	3.96	-	52
Leg (above ankle)	-	-	-	18	18	18	16.2	-	30	30	-	4.20	-	127
Ankle, foot, toes	-	-	-	17	17	17	15.3	-	30	30	-	3.96	-	118
Multiple	5	-	-	8	8	13	11.7	-	62	2,346	1.17	1.87	6,994	116
Unclassified (no data)	-	-	-	25	25	25	-	-	11	11	-	5.83	-	66
Total or average	6	-	-	130	130	136	-	-	27	291	1.40	30.31	8,393	824
Surface at underground:														
Head, face, neck (excl. eye)	-	-	-	3	3	3	6.1	-	4	4	-	2.37	-	9
Eye	-	-	-	3	3	3	6.1	-	5	5	-	2.37	-	11
Trunk	1	-	-	13	13	14	28.6	-	29	456	.79	10.28	4,745	301
Arm (above wrist)	-	-	-	2	2	2	4.1	-	98	98	-	1.58	-	156
Wrist, hand, fingers	-	-	1	9	10	10	20.4	300	16	45	-	7.91	-	353
Leg (above ankle)	-	-	-	3	3	3	6.1	-	47	47	-	2.37	-	111
Ankle, foot, toes	-	-	-	9	9	9	18.4	-	8	8	-	7.12	-	58
Multiple	-	-	-	5	5	5	10.2	-	21	21	-	3.95	-	81
Unclasssified (no data)	-	-	-	13	13	13	-	-	21	21	-	10.28	-	212
Total or average	1	-	1	60	61	62	-	300	22	123	.79	48.24	4,745	1,293
Total or average, underground mines	7	-	1	190	191	198	-	300	26	238	1.26	34.39	7,562	931
OPEN QUARRIES														
Head, face, neck (excl. eye)	7	1	3	65	69	76	7.1	920	20	685	.11	1.06	644	155
Eye	-	-	1	60	61	61	5.7	1,800	5	34	-	.94	-	32
Trunk	4	-	5	327	332	336	31.4	417	28	105	.06	5.09	368	174
Arm (above wrist)	-	-	1	49	50	50	4.7	1,125	22	44	-	.77	-	34
Wrist, hand, fingers	-	-	18	117	135	135	12.6	191	18	41	-	2.07	-	84
Leg (above ankle)	-	-	1	149	150	150	14.0	3,000	30	50	-	2.30	-	115
Ankle, foot, toes	-	-	4	157	161	161	15.0	254	23	29	-	2.47	-	72
Multiple	19	-	1	82	83	102	9.5	3,600	46	1,190	.29	1.27	1,748	113
Unclassified (no data)	-	-	-	472	472	472	-	-	26	26	-	7.24	-	185
Total or average	30	1	34	1,478	1,513	1,543	-	554	26	157	.46	23.20	2,760	963
OTHER SURFACE MINING														
Head, face, neck (excl. eye)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eye	-	-	-	4	4	4	6.7	-	5	5	-	2.97	-	16
Trunk	-	-	-	22	22	22	36.7	-	40	40	-	16.32	-	645
Arm (above wrist)	-	-	-	3	3	3	5.0	-	13	13	-	2.23	-	29
Wriat, hand, fingers	-	-	2	12	14	14	23.3	75	18	26	-	10.39	-	271
Leg (above ankle)	-	-	-	3	3	3	5.0	-	9	9	-	2.23	-	20
Ankle, foot, toes	-	-	-	13	13	13	21.7	-	18	18	-	9.64	-	174
Multiple	-	-	-	1	1	1	1.7	-	7	7	-	.74	-	5
Unclassified (no data)	-	-	-	20	20	20	-	-	16	16	-	14.84	-	244
Total or average	-	-	2	78	80	80	-	75	22	24	-	59.35	-	1,404
Total or average, mining	37	1	37	1,746	1,784	1,821	-	521	26	160	.51	24.74	3,079	969
MILLS														
Head, face, neck (excl. eye)	4	-	1	92	93	97	6.0	1,800	28	293	.04	.83	213	39
Eye	-	-	1	140	141	141	8.7	1,800	11	23	-	1.25	-	29
Trunk	10	1	5	524	530	540	33.2	190	28	151	.09	4.71	533	193
Arm (above wrist)	1	-	-	66	66	67	4.1	-	30	119	.01	.59	53	17
Wriat, hand, fingers	-	-	47	207	254	254	15.6	419	17	92	-	2.26	-	207
Leg (above ankle)	-	-	2	146	148	148	9.1	3,000	33	73	-	1.32	-	96
Ankle, foot, toes	-	-	5	257	262	262	16.1	516	23	32	-	2.33	-	75
Multiple	6	-	2	109	111	117	7.2	3,000	36	393	.05	.99	320	88
Unclassified (no data)	-	-	-	504	504	504	-	-	24	24	-	4.48	-	109
Total or average, mills	21	1	63	2,045	2,109	2,130	-	616	25	104	.19	18.75	1,120	854
Grand total or average	58	2	100	3,791	3,893	3,951	-	581	25	130	.31	21.09	1,885	899

1/ Number of injuries for which part of body is "Unclassified" is excluded in calculating percentages. Therefore, 100 percent for underground is 111; for surface, 49; for open quarries, 1,071; for other surface mining, 60; and for mills, 1,626. Distribution percentages may not add to 100.0 because of independent rounding.

TABLE B-5. - Injuries, distribution, average severity by degree, and injury rates at stone quarries and mills in the United States, by general work location and nature of injury, 1971

General work location and nature of injury	Injuries						Percentage distribution of all injuries 1/	Average severity			Frequency rates per million man-hours		Severity rates per million man-hours	
	Fatal	Nonfatal				All injuries		Permanent partial	Temporary total	All injuries	Fatal	Nonfatal	Fatal	Nonfatal
		Permanent		Temporary total	Total nonfatal									
		Total	Partial											
UNDERGROUND MINES														
Underground:														
Crushing, contusion, bruise	-	-	-	35	35	35	31.5	-	14	14	-	8.16	-	112
Burn, scald (except chemical)	-	-	-	4	4	4	3.6	-	112	112	-	.93	-	104
Radiation, radiating substance	-	-	-	1	1	1	.9	-	1	1	-	.23	-	(2/)
Cut, laceration, puncture	-	-	-	13	13	13	11.7	-	19	19	-	3.03	-	56
Foreign body in eye	-	-	-	4	4	4	3.6	-	1	1	-	.93	-	1
Fracture	6	-	-	16	16	22	19.8	-	63	1,682	1.40	3.73	8,393	234
Hernia (inguinal)	-	-	-	1	1	1	.9	-	30	30	-	.23	-	7
Strain, sprain, dislocation	-	-	-	29	29	29	26.1	-	28	28	-	6.76	-	187
Pneumoconiosis (except silicosis)	-	-	-	1	1	1	.9	-	56	56	-	.23	-	13
Concussion (cerebral)	-	-	-	1	1	1	.9	-	184	184	-	.23	-	43
Unclassified (no data)	-	-	-	25	25	25	-	-	11	11	-	5.83	-	66
Total or average	6	-	-	130	130	136	-	-	27	291	1.40	30.31	8,393	824
Surface at underground:														
Amputation, enucleation	-	-	1	-	1	1	2.0	300	-	300	-	.79	-	237
Crushing, contusion, bruise	1	-	-	7	7	8	16.3	-	32	778	.79	5.54	4,745	180
Burn, scald (except chemical)	-	-	-	1	1	1	2.0	-	18	18	-	.79	-	14
Chemical burn	-	-	-	1	1	1	2.0	-	11	11	-	.79	-	9
Radiation, radiating substance	-	-	-	2	2	2	4.1	-	6	6	-	1.58	-	10
Cut, laceration, puncture	-	-	-	6	6	6	12.2	-	9	9	-	4.74	-	41
Foreign body in eye	-	-	-	1	1	1	2.0	-	1	1	-	.79	-	1
Fracture	-	-	-	7	7	7	14.3	-	58	58	-	5.54	-	319
Strain, sprain, dislocation	-	-	-	21	21	21	42.9	-	16	16	-	16.61	-	267
Other, not elsewhere classified	-	-	-	1	1	1	2.0	-	4	4	-	.79	-	3
Unclassified (no data)	-	-	-	13	13	13	-	-	21	21	-	10.28	-	212
Total or average	1	-	1	60	61	62	-	300	22	123	.79	48.24	4,745	1,293
Total or average, underground mines	7	-	1	190	191	198	-	300	26	238	1.26	34.39	7,562	931
OPEN QUARRIES														
Amputation, enucleation	-	-	24	-	24	24	2.2	531	-	531	-	.37	-	195
Asphyxiation	-	-	-	2	2	2	.2	-	6	6	-	.03	-	(2/)
Crushing, contusion, bruise	6	-	2	238	240	246	23.0	622	15	166	.09	3.68	552	73
Burn, scald (except chemical)	-	-	-	22	22	22	2.1	-	38	38	-	.34	-	13
Chemical burn	-	-	-	8	8	8	.7	-	35	35	-	.12	-	4
Radiation, radiating substance	-	-	-	13	13	13	1.2	-	12	12	-	.20	-	2
Cut, laceration, puncture	-	-	-	134	134	134	12.5	-	15	15	-	2.05	-	30
Drowning	1	-	-	-	-	1	.1	-	-	6,000	.02	-	92	-
Electric shock	1	-	-	1	1	2	.2	-	11	3,006	.02	.02	92	(2/)
Foreign body in eye	-	-	-	30	30	30	2.8	-	4	4	-	.46	-	2
Fracture	21	1	1	185	187	208	19.4	1,500	55	691	.32	2.87	1,932	271
Heat exhaustion, sunstroke	-	-	-	1	1	1	.1	-	9	9	-	.02	-	(2/)
Hernia (inguinal)	-	-	2	19	21	21	2.0	42	49	49	-	.32	-	16
Strain, sprain, dislocation	-	-	1	345	346	346	32.3	450	22	23	-	5.31	-	124
Pneumoconiosis (except silicosis)	-	-	-	1	1	1	.1	-	71	71	-	.02	-	1
Concussion (cerebral)	-	-	-	5	5	5	.5	-	36	36	-	.08	-	3
Hernia (except inguinal)	-	-	1	-	1	1	.1	50	-	50	-	.02	-	1
Freezing, frostbite, etc.	-	-	-	1	1	1	.1	-	3	3	-	.02	-	(2/)
Inflammation or irritation of joints, tendons, muscles	-	-	-	1	1	1	.1	-	70	70	-	.02	-	1
Hearing loss, impairment	-	-	2	-	2	2	.2	1,350	-	1,350	-	.03	-	41
Other, not elsewhere classified	-	-	1	-	1	1	.1	60	-	60	-	.02	-	1
Unclassified (no data)	1	-	-	472	472	473	-	-	26	38	.02	7.24	92	185
Total or average	30	1	34	1,478	1,513	1,543	-	554	26	157	.46	23.20	2,760	963

1/ Number of injuries for which nature of injury is "Unclassified" is excluded in calculating percentages. Therefore, 100 percent for underground is 111; for surface, 49; for open quarries, 1,070; for other surface mining, 60; and for mills, 1,626. Distribution percentages may not add to 100.0 because of independent rounding.

2/ Less than 0.5.

TABLE B-5. - Injuries, distribution, average severity by degree, and injury rates at stone quarries and mills in the United States, by general work location and nature of injury, 1971 - Continued

General work location and nature of injury	Injuries						Percentage distribution of all injuries 1/	Average severity			Frequency rates per million man-hours		Severity rates per million man-hours	
	Fatal	Nonfatal				All injuries		Permanent partial	Temporary total	All injuries	Fatal	Nonfatal	Fatal	Nonfatal
		Permanent		Temporary total	Total nonfatal									
		Total	Partial											
OTHER SURFACE MINING														
Amputation, enucleation	-	-	2	-	2	2	3.3	75	-	75	-	1.48	-	111
Crushing, contusion, bruise	-	-	-	19	19	19	31.7	-	10	10	-	14.09	-	140
Radiation, radiating substance	-	-	-	1	1	1	1.7	-	3	3	-	.74	-	2
Cut, laceration, puncture	-	-	-	8	8	8	13.3	-	17	17	-	5.93	-	101
Dermatitis	-	-	-	1	1	1	1.7	-	21	21	-	.74	-	16
Foreign body in eye	-	-	-	3	3	3	5.0	-	6	6	-	2.23	-	13
Fracture	-	-	-	4	4	4	6.7	-	95	95	-	2.97	-	281
Hernia (inguinal)	-	-	-	2	2	2	3.3	-	59	59	-	1.48	-	88
Strain, sprain, dislocation	-	-	-	20	20	20	33.3	-	27	27	-	14.84	-	407
Unclassified (no data)	-	-	-	20	20	20	-	-	16	16	-	14.84	-	244
Total or average	-	-	2	78	80	80	-	75	22	24	-	59.35	-	1,404
Total or average, mining	37	1	37	1,746	1,784	1,821	-	521	26	160	.51	24.74	3,079	969
MILLS														
Amputation, enucleation	1	-	48	-	48	49	3.0	591	-	701	0.01	0.43	53	252
Asphyxiation	4	-	-	1	1	5	.3	-	1	4,800	.04	.01	213	(2/)
Crushing, contusion, bruise	6	-	2	302	304	310	19.1	1,125	13	136	.05	2.70	320	56
Burn, scald (except chemical)	-	-	-	56	56	56	3.4	-	28	28	-	.50	-	14
Chemical burn	-	-	-	89	89	89	5.5	-	12	12	-	.79	-	10
Radiation, radiating substance	-	-	-	23	23	23	1.4	-	6	6	-	.20	-	1
Cut, laceration, puncture	-	-	2	184	186	186	11.4	192	15	17	-	1.65	-	28
Dermatitis	-	-	-	3	3	3	.2	-	17	17	-	.03	-	(2/)
Electric shock	1	-	-	-	-	1	.1	-	-	6,000	.01	-	53	-
Foreign body in eye	-	-	-	58	58	58	3.6	-	8	8	-	.52	-	4
Fracture	9	1	6	266	273	282	17.3	969	56	286	.08	2.43	480	238
Heat exhaustion, sunstroke	-	-	-	4	4	4	.2	-	3	3	-	.04	-	(2/)
Hernia (inguinal)	-	-	4	33	37	37	2.3	50	54	53	-	.33	-	18
Poisoning (systemic)	-	-	-	3	3	3	.2	-	4	4	-	.03	-	(2/)
Strain, sprain, dislocation	-	-	-	501	501	501	30.8	-	22	22	-	4.45	-	98
Pneumoconiosis (except silicosis)	-	-	-	2	2	2	.1	-	4	4	-	.02	-	(2/)
Concussion (cerebral)	-	-	-	11	11	11	.7	-	84	84	-	.10	-	8
Hernia (except inguinal)	-	-	-	1	1	1	.1	-	6	6	-	.01	-	(2/)
Inflammation or irritation of joints, tendons, muscles	-	-	-	4	4	4	.2	-	56	56	-	.04	-	2
Hearing loss, impairment	-	-	1	-	1	1	.1	1,800	-	1,800	-	.01	-	16
Unclassified (no data)	-	-	-	504	504	504	-	-	24	24	-	4.48	-	109
Total or average, mills	21	1	63	2,045	2,109	2,130	-	616	25	104	.19	18.75	1,120	854
Grand total or average	58	2	100	3,791	3,893	3,951	-	581	25	130	.31	21.09	1,885	899

1/ Number of injuries for which nature of injury is "Unclassified" is excluded in calculating percentages. Therefore, 100 percent for underground is 111; for surface, 49; for open quarries, 1,070; for other surface mining, 60; and for mills, 1,626. Distribution percentages may not add to 100.0 because of independent rounding.

2/ Less than 0.5.

TABLE B-6. - Injury experience and worktime data on stone quarries and mills in the United States, by general work location and employment size group, 1971

General work location and employment size group	Injuries			Frequency rates per million man-hours			Severity rates per million man-hours			Active operations	Average men working daily	Average days active	Man-days worked	Man-hours worked
	Fatal	Nonfatal	Total	Fatal	Nonfatal	Total	Fatal	Nonfatal	Total					
Underground mines (includes surface work):														
1-4	-	6	6	-	38.88	38.88	-	1,899	1,899	27	84	223	18,770	154,310
5-9	-	11	11	-	19.45	19.45	-	851	851	44	295	230	67,985	565,515
10-19	1	57	58	0.64	36.38	37.02	3,829	1,032	4,861	54	752	249	186,984	1,566,847
20-34	-	53	53	-	47.65	47.65	-	1,318	1,318	20	506	257	130,249	1,112,268
35-49	-	14	14	-	25.46	25.46	-	458	458	7	282	241	68,021	549,968
50-99	6	44	50	4.63	33.97	38.60	27,792	743	28,535	9	597	271	161,845	1,295,337
100-149	-	6	6	-	19.38	19.38	-	317	317	1	106	365	38,690	309,520
Total or average	7	191	198	1.26	34.39	35.65	7,562	931	8,493	162	2,622	256	672,544	5,553,765
Open quarries:														
1-4	5	317	322	.40	25.67	26.08	2,430	1,351	3,780	2,867	6,706	215	1,442,523	12,347,846
5-9	10	408	418	.66	26.84	27.50	3,947	1,259	5,206	1,188	7,862	228	1,792,294	15,201,341
10-19	7	369	376	.41	21.83	22.25	2,485	827	3,313	652	8,387	237	1,986,407	16,900,656
20-34	4	199	203	.38	19.04	19.42	2,296	502	2,798	201	5,002	246	1,231,775	10,453,992
35-49	1	106	107	.29	30.58	30.86	1,731	1,421	3,152	40	1,584	259	410,124	3,466,882
50-99	3	101	104	.56	18.85	19.41	3,360	477	3,837	37	2,501	253	633,582	5,357,278
100-149	-	10	10	-	8.84	8.84	-	230	230	4	519	255	132,345	1,131,650
150-249	-	3	3	-	8.58	8.58	-	71	71	1	159	275	43,725	349,800
Total or average	30	1,513	1,543	.46	23.20	23.66	2,760	963	3,724	4,990	32,720	234	7,672,775	65,209,445
Other surface mining:														
1-4	-	2	2	-	298.86	298.86	-	15,989	15,989	4	10	82	821	6,692
5-9	-	15	15	-	99.25	99.25	-	2,700	2,700	7	50	327	16,327	151,129
10-19	-	11	11	-	45.96	45.96	-	1,040	1,040	5	76	320	24,332	239,349
20-34	-	51	51	-	61.37	61.37	-	1,285	1,285	10	238	322	76,599	831,030
35-49	-	1	1	-	8.35	8.35	-	501	501	1	48	312	14,976	119,808
Total or average	-	80	80	-	59.35	59.35	-	1,404	1,404	27	422	315	133,055	1,348,008
Total or average, mining	37	1,784	1,821	.51	24.74	25.25	3,079	969	4,048	5,179	35,764	237	8,478,374	72,111,218
Mills:														
1-4	2	361	363	.25	45.98	46.23	1,528	1,927	3,455	1,966	4,026	227	915,018	7,851,988
5-9	1	346	347	.10	33.76	33.86	585	998	1,583	723	4,925	243	1,198,884	10,249,366
10-19	7	280	287	.65	25.98	26.63	3,897	1,114	5,011	376	4,988	252	1,255,902	10,777,076
20-34	3	291	294	.26	25.69	25.96	1,589	1,490	3,079	183	4,894	277	1,356,037	11,327,182
35-49	2	142	144	.30	21.62	21.93	1,827	641	2,468	66	2,742	291	798,405	6,566,999
50-99	2	318	320	.07	11.25	11.32	424	917	1,342	149	10,930	320	3,492,319	28,278,154
100-149	-	207	207	-	11.37	11.37	-	338	338	59	7,083	319	2,260,623	18,202,627
150-249	4	125	129	.33	10.32	10.65	1,981	351	2,332	27	4,769	313	1,493,235	12,113,475
250 or more	-	39	39	-	5.46	5.46	-	176	176	9	2,685	327	877,134	7,137,081
Total or average, mills	21	2,109	2,130	.19	18.75	18.93	1,120	854	1,974	3,558	47,042	290	13,647,557	112,503,948
Grand total or average	58	3,893	3,951	.31	21.09	21.40	1,885	899	2,784	8,737	82,806	267	22,125,931	184,615,166

TABLE B-7. - Injuries by degree at stone quarries and mills in the United States, by State [1/], 1971

State	Injuries											
	At quarry						At mill					
	Fatal	Nonfatal				All injuries	Fatal	Nonfatal				All injuries
		Permanent		Temporary total	Total nonfatal			Permanent		Temporary total	Total nonfatal	
		Total	Partial					Total	Partial			
Alabama	-	-	-	22	22	22	-	1	-	28	29	29
Alaska	-	-	-	13	13	13	-	-	-	4	4	4
Arizona	-	-	-	7	7	7	-	-	-	19	19	19
Arkansas	-	-	-	31	31	31	1	-	3	44	47	48
California	6	-	2	73	75	81	1	-	1	94	95	96
Colorado	-	-	-	13	13	13	-	-	1	14	15	15
Connecticut	-	-	-	24	24	24	-	-	-	28	28	28
Florida	5	-	1	84	85	90	1	-	3	75	78	79
Georgia	2	-	2	70	72	74	-	-	1	75	76	76
Hawaii	-	-	-	40	40	40	-	-	-	20	20	20
Idaho	-	-	-	6	6	6	-	-	-	8	8	8
Illinois	2	-	4	82	86	88	2	-	5	112	117	119
Indiana	1	-	1	56	57	58	-	-	-	66	66	66
Iowa	1	1	1	68	70	71	3	-	2	38	40	43
Kansas	-	-	-	14	14	14	-	-	1	18	19	19
Kentucky	1	-	1	94	95	96	-	-	-	100	100	100
Louisiana	-	-	2	35	37	37	-	-	-	19	19	19
Maine	1	-	1	8	9	10	1	-	-	15	15	16
Maryland	-	-	-	26	26	26	-	-	1	14	15	15
Massachusetts	-	-	-	16	16	16	-	-	1	28	29	29
Michigan	-	-	1	23	24	24	1	-	-	58	58	59
Minnesota	-	-	-	21	21	21	-	-	-	78	78	78
Missouri	2	-	2	81	83	85	2	-	3	133	136	138
Montana	-	-	-	10	10	10	-	-	-	3	3	3
Nebraska	-	-	-	6	6	6	-	-	2	26	28	28
Nevada	-	-	-	5	5	5	-	-	-	11	11	11
New Hampshire	-	-	-	8	8	8	-	-	-	7	7	7
New Jersey	-	-	-	34	34	34	-	-	1	43	44	44
New Mexico	-	-	1	4	5	5	-	-	-	7	7	7
New York	-	-	2	45	47	47	-	-	1	58	59	59
North Carolina	3	-	-	23	23	26	-	-	5	27	32	32
Ohio	2	-	2	78	80	82	1	-	3	98	101	102
Oklahoma	-	-	1	35	36	36	1	-	2	52	54	55
Oregon	-	-	-	29	29	29	-	-	1	54	55	55
Pennsylvania	2	-	7	120	127	129	-	-	4	149	153	153
Rhode Island	-	-	-	3	3	3	-	-	-	1	1	1
South Carolina	1	-	1	8	9	10	1	-	1	14	15	16
South Dakota	-	-	-	19	19	19	-	-	3	10	13	13
Tennessee	2	-	1	42	43	45	1	-	2	78	80	81
Texas	-	-	1	117	118	118	2	-	7	108	115	117
Utah	-	-	-	4	4	4	-	-	-	7	7	7
Vermont	1	-	1	42	43	44	-	-	1	16	17	17
Virginia	1	-	1	91	92	93	2	-	6	115	121	123
Washington	3	-	-	17	17	20	-	-	-	10	10	10
West Virginia	1	-	1	29	30	31	1	-	-	28	28	29
Wisconsin	-	-	-	62	62	62	-	-	1	32	33	33
Wyoming	-	-	-	8	8	8	-	-	1	3	4	4
Total	37	1	37	1,746	1,784	1,821	21	1	63	2,045	2,109	2,130

1/ No injuries were reported at stone quarries and mills for States not listed.

TABLE B-8. - Fatal injuries by general work location and main cause at stone quarries and mills in the United States, by State 1/, 1971

State	Underground mines							Open quarries								Total, mining activities 2/	Mills									Grand total
	Underground				Surface																					
	Falls of roof or back	Sliding or falling material or objects	Explosives	Total, underground	Machinery	Total, surface	Total, underground mines	Falls of face or side	Slips or falls of persons	Handling material	Haulage	Explosives	Electricity	Machinery	Total, open quarries		Sliding or falling material or objects	Slips or falls of persons	Handling material	Haulage	Explosions of gas or dust	Explosives	Electricity	Machinery	Total, mills	
Arkansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1
California	-	4	-	4	-	-	4	-	-	-	1	-	-	1	2	6	1	-	-	-	-	-	-	-	1	7
Florida	-	-	-	-	-	-	-	-	1	-	-	3	-	1	5	5	-	-	-	-	-	-	-	1	1	6
Georgia	-	-	-	-	-	-	-	-	-	1	1	-	-	-	2	2	-	-	-	-	-	-	-	-	-	2
Illinois	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-	-	-	1	-	-	-	1	2	4
Indiana	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	1
Iowa	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	1	1	-	-	-	1	-	-	3	4
Kentucky	-	-	1	1	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Maine	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	1	1	-	-	-	-	-	-	-	1	2
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1
Missouri	-	-	-	-	1	1	1	-	-	-	-	-	-	1	1	2	-	-	-	1	-	-	1	-	2	4
North Carolina	-	-	-	-	-	-	-	-	1	-	1	-	-	1	3	3	-	-	-	-	-	-	-	-	-	3
Ohio	-	-	-	-	-	-	-	-	1	-	-	-	-	1	2	2	-	-	-	-	1	-	-	-	1	3
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1
Pennsylvania	1	-	-	1	-	-	1	-	-	-	-	-	-	1	1	2	-	-	-	-	-	-	-	-	-	2
South Carolina	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	1	-	-	-	-	-	1	2
Tennessee	-	-	-	-	-	-	-	-	1	-	-	-	-	1	2	2	1	-	-	-	-	-	-	-	1	3
Texas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	2	2
Vermont	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	1
Virginia	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	1	-	-	-	-	1	2	3
Washington	-	-	-	-	-	-	-	1	-	-	1	-	-	1	3	3	-	-	-	-	-	-	-	-	-	3
West Virginia	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	1	1	2
Total	1	4	1	6	1	1	7	1	4	1	5	3	1	15	30	37	4	3	2	4	1	1	1	5	21	58

1/ No fatal injuries were reported at stone quarries and mills for States not listed.
2/ No fatal injuries were reported at other surface mining at stone quarries and mills.

TABLE B-9. - Nonfatal injuries by general work location and main cause at stone quarries and mills in the United States, by State [1/], 1971

State	Underground mines																									Total, underground mines
	Underground														Surface											
	Falls of roof or back	Falls of face or side	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Machinery	Fires or suffocation from fires	Miscellaneous causes	Pneumoconiosis	Total, underground	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Explosives	Electricity	Machinery	Miscellaneous causes	Total, surface	
Alabama	-	-	-	-	2	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	2
Alaska	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arkansas	-	-	-	1	1	-	-	-	-	1	-	1	-	4	-	-	-	-	-	-	-	-	-	-	-	-	4
California	-	-	1	1	3	1	-	-	1	4	-	-	-	11	1	-	-	1	-	-	-	-	-	1	-	3	14
Colorado	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Connecticut	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Florida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Georgia	-	-	-	2	2	2	-	-	-	1	-	-	-	7	-	-	-	-	-	-	1	-	-	-	-	1	8
Hawaii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Illinois	1	-	-	1	-	-	-	-	3	1	-	-	-	6	-	1	2	-	-	-	2	-	-	-	1	6	12
Indiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iowa	-	-	-	-	-	-	-	-	-	1	2	-	-	3	-	1	2	-	-	-	1	-	-	-	-	4	7
Kansas	-	-	-	-	2	-	-	-	-	-	-	-	-	2	-	-	1	-	-	-	-	-	-	-	1	2	4
Kentucky	-	-	2	2	7	1	1	-	2	-	1	1	-	17	-	1	6	1	-	1	11	2	-	-	3	25	42
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maine	-	-	-	-	1	-	-	1	-	-	-	-	-	2	-	-	-	-	1	-	-	-	-	-	-	1	3
Maryland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Minnesota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	1	-	7	6	-	-	1	3	4	-	1	-	23	-	1	2	-	-	-	1	-	-	1	-	5	28
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nebraska	-	-	1	-	1	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	2
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Jersey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Mexico	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New York	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Carolina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ohio	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	1	2
Oklahoma	-	-	-	2	1	-	-	-	3	2	-	1	-	9	-	-	-	-	-	-	-	-	-	-	-	-	9
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pennsylvania	3	5	2	5	2	-	-	-	-	4	-	-	-	21	-	-	-	-	-	-	-	-	-	-	-	-	21
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Carolina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tennessee	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	1	-	3	3
Texas	-	-	-	-	1	1	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	2
Utah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vermont	-	-	-	2	4	1	-	-	-	1	-	-	1	9	-	-	-	-	-	-	-	-	-	-	-	-	9
Virginia	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	1	-	-	-	-	2	3
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
West Virginia	-	1	-	2	1	-	-	-	1	1	-	-	-	6	-	-	-	-	-	-	4	-	1	1	-	6	12
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wyoming	-	1	-	-	1	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	1	3
Total	4	8	6	25	37	6	1	2	13	20	3	4	1	130	1	4	14	2	1	1	26	2	1	4	5	61	191

1/ No nonfatal injuries were reported at stone quarries and mills for States not listed.

TABLE B-9. - Nonfatal injuries by general work location and main cause at stone quarries and mills in the United States, by State 1/, 1971 - Continued

State	Open quarries																Other surface mining										Total, mining activities
	Falls of face or side	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Explosions of gas or dust	Explosives	Electricity	Machinery	Fires or suffocation from fires	Miscellaneous causes	Pneumoconiosis	Total, open quarries	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Machinery	Miscellaneous causes	Total, other surface mining	
Alabama	-	-	2	5	-	1	-	2	-	-	-	-	-	2	-	12	-	-	4	2	-	-	1	-	1	8	22
Alaska	-	-	4	4	3	-	-	2	-	-	-	-	-	-	-	13	-	-	-	-	-	-	-	-	-	-	13
Arizona	-	-	2	1	-	1	-	1	-	-	-	2	-	-	-	7	-	-	-	-	-	-	-	-	-	-	7
Arkansas	-	-	7	8	1	1	-	5	-	-	-	3	-	2	-	27	-	-	-	-	-	-	-	-	-	-	31
California	-	-	11	16	2	1	-	14	-	-	-	13	-	2	-	59	-	-	-	-	-	-	1	1	-	2	75
Colorado	-	-	-	7	1	-	-	2	-	-	-	3	-	-	-	13	-	-	-	-	-	-	-	-	-	-	13
Connecticut	-	1	7	4	3	1	-	2	-	-	-	6	-	-	-	24	-	-	-	-	-	-	-	-	-	-	24
Florida	-	2	22	19	1	2	1	14	-	2	-	7	-	8	-	78	1	-	1	1	-	1	2	1	-	7	85
Georgia	-	1	10	15	7	1	1	17	-	1	1	9	-	1	-	64	-	-	-	-	-	-	-	-	-	-	72
Hawaii	-	1	-	14	6	4	1	5	-	-	-	5	-	4	-	40	-	-	-	-	-	-	-	-	-	-	40
Idaho	-	1	1	2	-	-	-	1	-	-	-	1	-	-	-	6	-	-	-	-	-	-	-	-	-	-	6
Illinois	-	1	10	17	7	2	1	12	-	1	-	20	-	3	-	74	-	-	-	-	-	-	-	-	-	-	86
Indiana	-	1	15	12	6	1	-	11	-	-	-	7	1	3	-	57	-	-	-	-	-	-	-	-	-	-	57
Iowa	-	1	10	16	6	1	-	14	-	-	-	11	-	4	-	63	-	-	-	-	-	-	-	-	-	-	70
Kansas	-	-	2	1	2	-	-	3	-	-	1	1	-	-	-	10	-	-	-	-	-	-	-	-	-	-	14
Kentucky	-	1	6	16	3	6	-	14	1	1	-	4	1	-	-	53	-	-	-	-	-	-	-	-	-	-	95
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	7	10	-	-	2	9	3	5	37	37
Maine	-	-	-	2	-	-	-	2	-	1	-	1	-	-	-	6	-	-	-	-	-	-	-	-	-	-	9
Maryland	-	-	7	4	-	-	-	5	-	1	-	3	1	2	1	24	-	-	1	-	-	-	-	-	-	1	26
Massachusetts	-	-	4	7	-	1	-	2	-	-	-	1	1	-	-	16	-	-	-	-	-	-	-	-	-	-	16
Michigan	-	1	3	8	3	-	-	1	-	1	-	4	-	3	-	24	-	-	-	-	-	-	-	-	-	-	24
Minnesota	-	-	3	4	2	-	1	3	-	1	-	5	-	2	-	21	-	-	-	-	-	-	-	-	-	-	21
Missouri	1	-	8	14	2	1	-	13	-	1	-	9	-	6	-	55	-	-	-	-	-	-	-	-	-	-	83
Montana	-	-	2	4	-	-	-	-	-	-	-	1	-	3	-	10	-	-	-	-	-	-	-	-	-	-	10
Nebraska	-	-	-	-	-	-	-	3	-	-	-	1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	6
Nevada	-	-	2	-	-	-	-	2	-	-	-	1	-	-	-	5	-	-	-	-	-	-	-	-	-	-	5
New Hampshire	-	-	2	-	1	-	-	-	-	-	-	3	-	2	-	8	-	-	-	-	-	-	-	-	-	-	8
New Jersey	1	1	9	9	2	1	2	2	-	-	-	4	-	3	-	34	-	-	-	-	-	-	-	-	-	-	34
New Mexico	-	-	-	-	1	1	-	1	-	-	-	1	-	1	-	5	-	-	-	-	-	-	-	-	-	-	5
New York	-	2	6	11	3	-	1	12	-	-	-	6	-	6	-	47	-	-	-	-	-	-	-	-	-	-	47
North Carolina	-	1	4	8	2	1	2	2	-	-	-	3	-	-	-	23	-	-	-	-	-	-	-	-	-	-	23
Ohio	-	4	18	16	5	4	2	16	-	2	-	8	1	2	-	78	-	-	-	-	-	-	-	-	-	-	80
Oklahoma	-	3	7	7	1	1	-	4	-	-	-	2	-	2	-	27	-	-	-	-	-	-	-	-	-	-	36
Oregon	-	-	4	10	1	-	-	6	-	-	-	5	1	2	-	29	-	-	-	-	-	-	-	-	-	-	29
Pennsylvania	2	2	19	33	11	3	1	13	-	-	2	15	-	5	-	106	-	-	-	-	-	-	-	-	-	-	127
Rhode Island	-	-	1	1	-	-	-	1	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	3
South Carolina	-	-	1	1	2	1	-	2	-	-	-	2	-	-	-	9	-	-	-	-	-	-	-	-	-	-	9
South Dakota	-	-	3	9	-	1	-	1	-	-	-	5	-	-	-	19	-	-	-	-	-	-	-	-	-	-	19
Tennessee	-	-	12	11	6	1	-	4	-	1	-	4	-	1	-	40	-	-	-	-	-	-	-	-	-	-	43
Texas	1	-	16	23	6	5	2	20	-	-	1	11	-	6	-	91	1	1	8	3	2	1	6	-	3	25	118
Utah	-	-	2	1	-	-	-	1	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	4
Vermont	-	1	6	11	4	1	-	2	-	-	-	3	-	6	-	34	-	-	-	-	-	-	-	-	-	-	43
Virginia	-	3	15	28	4	2	-	16	-	1	-	14	-	6	-	89	-	-	-	-	-	-	-	-	-	-	92
Washington	-	-	3	5	-	1	-	5	-	1	-	2	-	-	-	17	-	-	-	-	-	-	-	-	-	-	17
West Virginia	-	1	1	5	-	-	-	6	-	-	-	4	-	1	-	18	-	-	-	-	-	-	-	-	-	-	30
Wisconsin	-	1	17	20	8	-	-	9	-	-	-	7	-	-	-	62	-	-	-	-	-	-	-	-	-	-	62
Wyoming	1	1	1	2	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	8
Total	6	31	285	411	112	47	15	273	1	15	5	217	6	88	1	1,513	3	8	24	6	2	4	19	5	9	80	1,784

1/ No nonfatal injuries were reported at stone quarries and mills for States not listed.

TABLE B-9. - Nonfatal injuries by general work location and main cause at stone quarries and mills in the United States, by State 1/, 1971 - Continued

State	Mills															Grand total
	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Explosions of gas or dust	Explosives	Electricity	Machinery	Fires or suffocation from fires	Miscellaneous causes	Pneumoconiosis	Total, mills	
Alabama	-	7	10	2	-	-	4	1	-	1	2	-	2	-	29	51
Alaska	-	-	-	2	-	-	-	-	-	-	1	-	1	-	4	17
Arizona	-	3	5	2	-	-	1	-	-	1	2	-	5	-	19	26
Arkansas	1	11	18	4	-	-	6	-	-	1	5	-	1	-	47	78
California	2	14	35	8	3	-	6	-	-	2	13	1	11	-	95	170
Colorado	-	1	11	-	-	-	-	1	-	-	2	-	-	-	15	28
Connecticut	1	5	11	-	1	1	3	-	-	-	4	-	2	-	28	52
Florida	-	17	24	7	-	1	5	-	-	-	16	-	8	-	78	163
Georgia	2	11	26	6	1	1	7	-	-	-	10	1	11	-	76	148
Hawaii	-	4	6	1	3	1	1	-	-	-	2	-	2	-	20	60
Idaho	1	4	1	-	-	-	2	-	-	-	-	-	-	-	8	14
Illinois	1	28	32	10	3	2	15	-	-	-	23	-	3	-	117	203
Indiana	4	10	27	5	2	-	4	-	-	1	6	-	7	-	66	123
Iowa	3	9	10	1	-	-	4	-	-	-	9	-	4	-	40	110
Kansas	-	4	5	-	-	-	4	-	-	-	5	-	1	-	19	33
Kentucky	6	15	36	3	1	1	10	-	1	-	14	-	13	-	100	195
Louisiana	-	2	6	1	-	-	2	-	-	-	5	-	3	-	19	56
Maine	-	-	7	2	-	-	-	-	-	-	3	-	3	-	15	24
Maryland	-	3	6	1	-	1	-	-	-	-	1	-	3	-	15	41
Massachusetts	1	6	11	-	-	1	-	-	-	-	8	-	2	-	29	45
Michigan	3	9	21	1	3	1	5	-	-	-	10	1	4	-	58	82
Minnesota	2	20	27	2	2	-	11	-	-	1	11	-	2	-	78	99
Missouri	3	25	53	5	3	3	13	-	-	-	19	-	12	-	136	219
Montana	-	-	2	1	-	-	-	-	-	-	-	-	-	-	3	13
Nebraska	1	9	8	1	-	-	5	-	-	-	3	-	1	-	28	34
Nevada	-	3	3	-	-	-	2	-	-	-	-	-	3	-	11	16
New Hampshire	-	1	5	-	-	-	-	-	-	-	-	-	1	-	7	15
New Jersey	3	7	11	2	1	4	2	-	-	-	5	1	7	1	44	78
New Mexico	-	1	1	1	-	1	-	-	-	-	2	-	1	-	7	12
New York	3	14	22	2	2	3	2	-	-	-	9	-	2	-	59	106
North Carolina	2	4	8	1	-	2	3	-	1	1	9	1	-	-	32	55
Ohio	4	19	30	10	1	3	9	-	-	3	7	1	14	-	101	181
Oklahoma	1	9	20	-	-	1	3	-	-	1	7	1	10	1	54	90
Oregon	3	10	14	2	2	3	3	-	1	1	6	-	10	-	55	84
Pennsylvania	9	35	43	14	5	1	11	-	-	3	21	-	11	-	153	280
Rhode Island	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	4
South Carolina	-	1	7	-	-	-	3	-	-	1	2	-	1	-	15	24
South Dakota	-	6	1	1	-	1	1	-	-	-	2	-	1	-	13	32
Tennessee	-	10	34	10	-	3	4	-	-	1	7	-	11	-	80	123
Texas	5	13	40	11	-	4	14	-	-	1	13	1	13	-	115	233
Utah	-	2	2	2	-	-	-	-	-	-	-	-	1	-	7	11
Vermont	-	2	5	3	1	1	3	-	-	-	-	-	2	-	17	60
Virginia	2	15	36	11	3	2	13	-	-	3	14	-	22	-	121	213
Washington	1	1	2	2	-	-	-	-	-	-	2	-	2	-	10	27
West Virginia	1	8	7	5	-	-	3	-	-	-	3	-	1	-	28	58
Wisconsin	1	5	9	1	-	-	5	-	-	-	6	-	6	-	33	95
Wyoming	-	-	1	-	1	-	-	-	-	1	1	-	-	-	4	12
Total	66	383	700	143	38	42	189	2	3	23	290	8	220	2	2,109	3,893

1/ No nonfatal injuries were reported at stone quarries and mills for States not listed.

TABLE 8-10. - Injuries by general work location and main cause at stone quarries and mills in the United States, by degree of injury and kind of stone, 1971

Degree of injury and kind of stone	Underground mines																												
	Underground																Surface												
	Falls of roof or back	Falls of face or side	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Explosives	Machinery	Fires or suffocation from fires	Miscellaneous causes	Pneumoconiosis	Total, underground	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Explosives	Electricity	Machinery	Miscellaneous causes	Total, surface at underground	Total, underground mines
Fatal and nonfatal:																													
Cement 1/	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	1	2
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone	2	4	8	11	22	3	1	-	10	1	8	3	2	-	75	1	3	12	2	-	1	21	2	1	4	5	52	127
Limestone (chief product, lime)	2	2	2	6	5	-	-	-	3	-	8	-	1	-	29	-	1	2	-	-	-	4	-	-	-	-	7	36
Marble	-	-	-	5	9	3	-	1	-	-	2	-	1	1	22	-	-	-	-	-	-	1	-	-	-	1	1	23
Sandstone	1	2	-	3	-	-	-	-	-	-	1	-	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	7
Slate	-	-	-	-	1	-	-	1	-	-	-	-	-	-	2	-	-	-	-	1	-	-	-	-	-	-	1	3
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	5	8	10	25	37	6	1	2	13	1	20	3	4	1	136	1	4	14	2	1	1	26	2	1	5	5	62	198
Fatal:																													
Cement 1/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone	-	-	4	-	-	-	-	-	-	1	-	-	-	-	5	-	-	-	-	-	-	-	-	-	1	-	1	6
Limestone (chief product, lime)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
Marble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1	-	4	-	-	-	-	-	-	1	-	-	-	-	6	-	-	-	-	-	-	-	-	-	1	-	1	7
Permanent total:																													
Cement 1/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone (chief product, lime)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Permanent partial:																													
Cement 1/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1
Limestone (chief product, lime)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	1	1
Temporary total:																													
Cement 1/	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	1	2
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone	2	4	4	11	22	3	1	-	10	-	8	3	2	-	70	1	3	12	2	-	1	20	2	1	3	5	50	120
Limestone (chief product, lime)	1	2	2	6	5	-	-	-	3	-	8	-	1	-	28	-	1	2	-	-	-	4	-	-	-	-	7	35
Marble	-	-	-	5	9	3	-	1	-	-	2	-	1	1	22	-	-	-	-	-	-	1	-	-	-	-	1	23
Sandstone	1	2	-	3	-	-	-	-	-	-	1	-	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	7
Slate	-	-	-	-	1	-	-	1	-	-	-	-	-	-	2	-	-	-	-	1	-	-	-	-	-	-	1	3
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	4	8	6	25	37	6	1	2	13	-	20	3	4	1	130	1	4	14	2	1	1	25	2	1	4	5	60	190

1/ Includes limestone or other stones used in manufacturing cement.

TABLE B-10. - Injuries by general work location and main cause at stone quarries and mills in the United States, by degree of injury and kind of stone, 1971 - Continued

Degree of injury and kind of stone	Open quarries																Other surface mining										Total, mining activities
	Falls of face or side	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Explosions of gas or dust	Explosives	Electricity	Machinery	Fires or suffocation from fires	Miscellaneous causes	Pneumoconiosis	Total, open quarries	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Machinery	Miscellaneous causes	Total, other surface mining	
Fatal and nonfatal:																											
Cement 1/	-	1	16	12	1	1	-	14	-	2	-	9	-	2	-	58	-	-	-	-	-	-	-	-	-	-	60
Granite	-	4	36	54	25	9	4	31	-	1	1	24	1	18	-	208	-	-	-	-	-	-	-	-	-	-	208
Limestone	5	18	157	212	51	26	5	159	1	14	3	128	4	46	-	829	3	8	24	6	2	4	19	5	9	80	1,036
Limestone (chief product, lime)	1	1	11	17	4	3	1	12	-	-	1	4	-	5	-	60	-	-	-	-	-	-	-	-	-	-	96
Marble	-	1	7	7	1	-	1	3	-	-	-	4	-	1	-	25	-	-	-	-	-	-	-	-	-	-	48
Sandstone	1	2	20	34	8	-	1	9	-	-	1	20	-	4	-	100	-	-	-	-	-	-	-	-	-	-	107
Slate	-	-	7	16	7	2	-	3	-	-	-	4	-	-	-	39	-	-	-	-	-	-	-	-	-	-	42
Traprock	-	3	27	42	15	3	3	38	-	1	-	31	1	8	1	173	-	-	-	-	-	-	-	-	-	-	173
Miscellaneous stone	-	1	8	18	-	3	-	9	-	-	-	8	-	4	-	51	-	-	-	-	-	-	-	-	-	-	51
Total	7	31	289	412	112	47	15	278	1	18	6	232	6	88	1	1,543	3	8	24	6	2	4	19	5	9	80	1,821
Fatal:																											
Cement 1/	-	-	-	-	-	-	-	-	-	1	-	2	-	-	-	3	-	-	-	-	-	-	-	-	-	-	3
Granite	-	-	-	-	-	-	-	2	-	-	-	2	-	-	-	4	-	-	-	-	-	-	-	-	-	-	4
Limestone	1	-	3	1	-	-	-	1	-	2	1	9	-	-	-	18	-	-	-	-	-	-	-	-	-	-	24
Limestone (chief product, lime)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	2
Marble	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Traprock	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	2	-	-	-	-	-	-	-	-	-	-	2
Miscellaneous stone	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Total	1	-	4	1	-	-	-	5	-	3	1	15	-	-	-	30	-	-	-	-	-	-	-	-	-	-	37
Permanent total:																											
Cement 1/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Limestone (chief product, lime)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Permanent partial:																											
Cement 1/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granite	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	3	-	-	-	-	-	-	-	-	-	-	3
Limestone	1	-	2	5	1	-	-	2	-	1	-	11	-	-	-	23	-	-	-	-	-	1	-	1	-	2	26
Limestone (chief product, lime)	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Marble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sandstone	-	-	-	2	-	-	-	1	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	3
Slate	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	2
Traprock	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Total	1	-	3	10	1	-	-	4	-	1	-	14	-	-	-	34	-	-	-	-	-	1	-	1	-	2	37
Temporary total:																											
Cement 1/	-	1	16	12	1	1	-	14	-	1	-	7	-	2	-	55	-	-	-	-	-	-	-	-	-	-	57
Granite	-	4	36	52	25	9	4	29	-	1	1	21	1	18	-	201	-	-	-	-	-	-	-	-	-	-	201
Limestone	3	18	152	206	50	26	5	155	1	11	2	108	4	46	-	787	3	8	24	6	2	3	19	4	9	78	985
Limestone (chief product, lime)	1	1	11	17	4	3	1	11	-	-	1	3	-	5	-	58	-	-	-	-	-	-	-	-	-	-	93
Marble	-	1	6	7	1	-	1	3	-	-	-	4	-	1	-	24	-	-	-	-	-	-	-	-	-	-	47
Sandstone	1	2	20	32	8	-	1	8	-	-	1	20	-	4	-	97	-	-	-	-	-	-	-	-	-	-	104
Slate	-	-	6	15	7	2	-	3	-	-	-	4	-	-	-	37	-	-	-	-	-	-	-	-	-	-	40
Traprock	-	3	27	42	15	3	3	37	-	1	-	29	1	8	1	170	-	-	-	-	-	-	-	-	-	-	170
Miscellaneous stone	-	1	8	18	-	3	-	8	-	-	-	7	-	4	-	49	-	-	-	-	-	-	-	-	-	-	49
Total	5	31	282	401	111	47	15	268	1	14	5	203	6	88	1	1,478	3	8	24	6	2	3	19	4	9	78	1,746

1/ Includes limestone or other stones used in manufacturing cement.

TABLE B-10. - Injuries by general work location and main cause at stone quarries and mills in the United States, by degree of injury and kind of stone, 1971 - Continued

Degree of injury and kind of stone	Mills															
	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Explosions of gas or dust	Explosives	Electricity	Machinery	Fires or suffocation from fires	Miscellaneous causes	Pneumoconiosis	Total, mills	Grand total
Fatal and nonfatal:																
Cement 1/	16	82	110	23	14	7	22	2	1	5	44	3	36	-	365	425
Granite	6	38	83	9	-	5	19	-	-	2	36	2	19	-	219	427
Limestone	33	140	270	63	11	13	92	-	3	10	137	1	67	1	841	1,877
Limestone (chief product, lime)	2	56	68	16	2	8	27	1	-	2	20	1	59	1	263	359
Marble	1	6	42	5	4	2	5	-	-	-	8	-	8	-	81	129
Sandstone	5	33	51	11	1	1	11	-	-	2	21	-	5	-	141	248
Slate	-	3	14	3	-	-	-	-	-	-	-	-	1	-	21	63
Traprock	5	21	39	7	6	4	8	-	-	2	19	1	16	-	128	301
Miscellaneous stone	2	7	25	6	-	2	9	-	-	1	10	-	9	-	71	122
Total	70	386	702	143	38	42	193	3	4	24	295	8	220	2	2,130	3,951
Fatal:																
Cement 1/	1	-	1	-	-	-	1	-	-	-	-	-	-	-	3	6
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Limestone	2	1	1	-	-	-	2	-	1	1	4	-	-	-	12	36
Limestone (chief product, lime)	-	2	-	-	-	-	1	1	-	-	-	-	-	-	4	6
Marble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Miscellaneous stone	1	-	-	-	-	-	-	-	-	-	1	-	-	-	2	3
Total	4	3	2	-	-	-	4	1	1	1	5	-	-	-	21	58
Permanent total:																
Cement 1/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	2
Limestone (chief product, lime)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	2
Permanent partial:																
Cement 1/	-	1	2	3	-	-	-	-	-	-	8	-	1	-	15	15
Granite	-	-	2	1	-	-	2	-	-	-	6	-	-	-	11	14
Limestone	1	-	4	3	-	-	1	-	-	-	18	-	-	-	27	53
Limestone (chief product, lime)	-	-	-	-	-	-	-	-	-	1	1	-	-	-	2	3
Marble	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	1
Sandstone	-	1	-	-	-	-	-	-	-	-	1	-	-	-	2	5
Slate	-	1	2	-	-	-	-	-	-	-	-	-	-	-	3	5
Traprock	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	2
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	2
Total	1	3	11	8	-	-	3	-	-	1	35	-	1	-	63	100
Temporary total:																
Cement 1/	15	81	107	20	14	7	21	2	1	5	36	3	35	-	347	404
Granite	6	38	81	8	-	5	17	-	-	2	30	2	19	-	208	409
Limestone	30	138	265	60	11	13	89	-	2	9	115	1	67	1	801	1,786
Limestone (chief product, lime)	2	54	68	16	2	8	26	-	-	1	19	1	59	1	257	350
Marble	1	6	42	4	4	2	5	-	-	-	8	-	8	-	80	127
Sandstone	5	32	51	11	1	1	11	-	-	2	20	-	5	-	139	243
Slate	-	2	12	3	-	-	-	-	-	-	-	-	1	-	18	58
Traprock	5	21	38	7	6	4	8	-	-	2	19	1	16	-	127	297
Miscellaneous stone	1	7	25	6	-	2	9	-	-	1	8	-	9	-	68	117
Total	65	379	689	135	38	42	186	2	3	22	255	8	219	2	2,045	3,791

1/ Includes limestone or other stones used in manufacturing cement.

TABLE B-11. - Injuries by general work location and main cause at stone quarries and mills in the United States, by dimension stone, crushed and broken stone, degree of injury, and kind of stone 1/, 1971

Degree of injury and kind of stone	Underground mines																										
	Underground															Surface											
	Falls of roof or back	Falls of face or side	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Explosives	Machinery	Fires or suffocation from fires	Miscellaneous causes	Pneumoconiosis	Total, underground	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Explosives	Electricity	Machinery	Miscellaneous causes	Total, surface at underground	Total, underground mines
Dimension stone:																											
Fatal:																											
Marble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Permanent partial:																											
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Temporary total:																											
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone	-	-	-	-	2	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	2
Marble	-	-	-	3	5	1	-	1	-	-	1	-	1	1	13	-	-	-	-	-	-	-	-	-	-	-	13
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Slate	-	-	-	-	1	-	-	1	-	-	-	-	-	-	2	-	-	-	-	1	-	-	-	-	-	1	3
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	3	8	1	-	2	-	-	1	-	1	1	17	-	-	-	-	1	-	-	-	-	-	1	18
Crushed and broken stone 2/:																											
Fatal:																											
Cement 3/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone	-	-	4	-	-	-	-	-	-	1	-	-	-	-	5	-	-	-	-	-	-	-	-	-	1	1	6
Limestone (chief product, lime)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1	-	4	-	-	-	-	-	-	1	-	-	-	-	6	-	-	-	-	-	-	-	-	-	1	-	1	7
Permanent total:																											
Limestone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Permanent partial:																											
Cement 3/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1
Limestone (chief product, lime)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1
Temporary total:																											
Cement 3/	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	1	2
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Limestone	2	4	4	11	20	3	1	-	10	-	8	3	2	-	68	1	3	12	2	-	1	20	2	1	3	5	50	118
Limestone (chief product, lime)	1	2	2	6	5	-	-	-	3	-	8	-	1	-	28	-	1	2	-	-	-	4	-	-	-	-	7	35
Marble	-	-	-	2	4	2	-	-	-	-	1	-	-	-	9	-	-	-	-	-	-	1	-	-	-	-	1	10
Sandstone	1	2	-	3	-	-	-	-	-	-	1	-	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	7
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	4	8	6	22	29	5	1	-	13	-	19	3	3	-	113	1	4	14	2	-	1	25	2	1	4	5	59	172
Grand total:																											
Fatal	1	-	4	-	-	-	-	-	-	1	-	-	-	-	6	-	-	-	-	-	-	-	-	-	1	-	1	7
Permanent total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Permanent partial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1
Temporary total	4	8	6	25	37	6	1	2	13	-	20	3	4	1	130	1	4	14	2	1	1	25	2	1	4	5	60	190
Total nonfatal	4	8	6	25	37	6	1	2	13	-	20	3	4	1	130	1	4	14	2	1	1	26	2	1	4	5	61	191

1/ No injuries occurred in stones not listed.
2/ Same as nondimension stone.
3/ Includes limestone or other stones used in manufacturing cement.

TABLE B-11. - Injuries by general work location and main cause at stone quarries and mills in the United States, by dimension stone, crushed and broken stone, degree of injury, and kind of stone 1/, 1971 - Continued

Degree of injury and kind of stone	Open quarries																Other surface mining										Total, mining activities
	Falls of face or side	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Explosions of gas or dust	Explosives	Electricity	Machinery	Fires or suffocation from fires	Miscellaneous causes	Pneumoconiosis	Total, open quarries	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Machinery	Miscellaneous causes	Total, other surface mining	
Dimension stone:																											
Fatal:																											
Marble	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Total	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Permanent partial:																											
Granite	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	2	-	-	-	-	-	-	-	-	-	-	2
Limestone	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Marble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sandstone	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Slate	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	2
Total	-	-	2	3	-	-	-	-	-	-	-	1	-	-	-	6	-	-	-	-	-	-	-	-	-	-	6
Temporary total:																											
Granite	-	1	15	24	10	3	4	2	-	-	-	8	1	8	-	76	-	-	-	-	-	-	-	-	-	-	76
Limestone	-	-	9	7	4	-	-	3	-	-	-	5	1	2	-	31	-	-	-	-	-	-	-	-	-	-	33
Marble	-	-	-	1	1	-	-	-	-	-	-	2	-	-	-	4	-	-	-	-	-	-	-	-	-	-	17
Sandstone	-	-	5	9	3	-	1	2	-	-	-	4	-	-	-	24	-	-	-	-	-	-	-	-	-	-	24
Slate	-	-	5	7	5	1	-	-	-	-	-	2	-	-	-	20	-	-	-	-	-	-	-	-	-	-	23
Miscellaneous stone	-	-	-	2	-	-	-	1	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	3
Total	-	1	34	50	23	4	5	8	-	-	-	21	2	10	-	158	-	-	-	-	-	-	-	-	-	-	176
Crushed and broken stone 2/:																											
Fatal:																											
Cement 3/	-	-	-	-	-	-	-	-	-	1	-	2	-	-	-	3	-	-	-	-	-	-	-	-	-	-	3
Granite	-	-	-	-	-	-	-	2	-	-	-	2	-	-	-	4	-	-	-	-	-	-	-	-	-	-	4
Limestone	1	-	3	1	-	-	-	1	-	2	1	9	-	-	-	18	-	-	-	-	-	-	-	-	-	-	24
Limestone (chief product, lime)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	2
Traprock	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	2	-	-	-	-	-	-	-	-	-	-	2
Miscellaneous stone	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Total	1	-	3	1	-	-	-	5	-	3	1	15	-	-	-	29	-	-	-	-	-	-	-	-	-	-	36
Permanent total:																											
Limestone	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Total	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Permanent partial:																											
Gement 3/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granite	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Limestone	1	-	1	5	1	-	-	2	-	1	-	11	-	-	-	22	-	-	-	-	-	1	-	1	-	2	25
Limestone (chief product, lime)	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Sandstone	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	2
Traprock	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Total	1	-	1	7	1	-	-	4	-	1	-	13	-	-	-	28	-	-	-	-	-	1	-	1	-	2	31
Temporary total:																											
Gement 3/	-	1	16	12	1	1	-	14	-	1	-	7	-	2	-	55	-	-	-	-	-	-	-	-	-	-	57
Granite	-	3	21	28	15	6	-	27	-	1	1	13	-	10	-	125	-	-	-	-	-	-	-	-	-	-	125
Limestone	3	18	143	199	46	26	5	152	1	11	2	103	3	44	-	756	3	8	24	6	2	3	19	4	9	78	952
Limestone (chief product, lime)	1	1	11	17	4	3	1	11	-	-	1	3	-	5	-	58	-	-	-	-	-	-	-	-	-	-	93
Marble	-	1	6	6	-	-	1	3	-	-	-	2	-	1	-	20	-	-	-	-	-	-	-	-	-	-	30
Sandstone	1	2	15	23	5	-	-	6	-	-	1	16	-	4	-	73	-	-	-	-	-	-	-	-	-	-	80
Slate	-	-	1	8	2	1	-	3	-	-	-	2	-	-	-	17	-	-	-	-	-	-	-	-	-	-	17
Traprock	-	3	27	42	15	3	3	37	-	1	-	29	1	8	1	170	-	-	-	-	-	-	-	-	-	-	170
Miscellaneous stone	-	1	8	16	-	3	-	7	-	-	-	7	-	4	-	46	-	-	-	-	-	-	-	-	-	-	46
Total	5	30	248	351	88	43	10	260	1	14	5	182	4	78	1	1,320	3	8	24	6	2	3	19	4	9	78	1,570
Grand total:																											
Fatal	1	-	4	1	-	-	-	5	-	3	1	15	-	-	-	30	-	-	-	-	-	-	-	-	-	-	37
Permanent total	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Permanent partial	1	-	3	10	1	-	-	4	-	1	-	14	-	-	-	34	-	-	-	-	-	1	-	1	-	2	37
Temporary total	5	31	282	401	111	47	15	268	1	14	5	203	6	88	1	1,478	3	8	24	6	2	3	19	4	9	78	1,746
Total nonfatal	6	31	285	411	112	47	15	273	1	15	5	217	6	88	1	1,513	3	8	24	6	2	4	19	5	9	80	1,784

1/ No injuries occurred in stones not listed.
2/ Same as nondimension stone.
3/ Includes limestone or other stones used in manufacturing cement.

TABLE B-11. - Injuries by general work location and main cause at stone quarries and mills in the United States, by dimension stone, crushed and broken stone, degree of injury, and kind of stone 1/, 1971 - Continued

Degree of injury and kind of stone	Mills															Grand total
	Sliding or falling material or objects	Slips or falls of persons	Handling material	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Explosions of gas or dust	Explosives	Electricity	Machinery	Fires or suffocation from fires	Miscellaneous causes	Pneumoconiosis	Total, mills	
Dimension stone:																
Fatal:																
Marble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Permanent partial:																
Granite	-	-	1	1	-	-	1	-	-	-	3	-	-	-	6	8
Limestone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Marble	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	1
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Slate	-	1	2	-	-	-	-	-	-	-	-	-	-	-	3	5
Total	-	1	3	2	-	-	1	-	-	-	3	-	-	-	10	16
Temporary total:																
Granite	-	9	28	4	-	2	4	-	-	-	11	1	5	-	64	140
Limestone	1	4	15	1	-	-	1	-	-	-	3	-	-	-	25	58
Marble	-	2	22	1	2	1	-	-	-	-	1	-	-	-	29	46
Sandstone	1	-	10	2	-	-	-	-	-	-	2	-	2	-	17	41
Slate	-	-	9	2	-	-	-	-	-	-	-	-	-	-	11	34
Miscellaneous stone	-	-	1	-	-	-	-	-	-	-	-	-	1	-	2	5
Total	2	15	85	10	2	3	5	-	-	-	17	1	8	-	148	324
Crushed and broken stone 2/:																
Fatal:																
Cement 3/	1	-	1	-	-	-	1	-	-	-	-	-	-	-	3	6
Granite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Limestone	2	1	1	-	-	-	2	-	1	1	4	-	-	-	12	36
Limestone (chief product, lime)	-	2	-	-	-	-	1	1	-	-	-	-	-	-	4	6
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Miscellaneous stone	1	-	-	-	-	-	-	-	-	-	1	-	-	-	2	3
Total	4	3	2	-	-	-	4	1	1	1	5	-	-	-	21	57
Permanent total:																
Limestone	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	2
Total	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	2
Permanent partial:																
Cement 3/	-	1	2	3	-	-	-	-	-	-	8	-	1	-	15	15
Granite	-	-	1	-	-	-	1	-	-	-	3	-	-	-	5	6
Limestone	1	-	4	3	-	-	1	-	-	-	18	-	-	-	27	52
Limestone (chief product, lime)	-	-	-	-	-	-	-	-	-	1	1	-	-	-	2	3
Sandstone	-	1	-	-	-	-	-	-	-	-	1	-	-	-	2	4
Traprock	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	2
Miscellaneous stone	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	2
Total	1	2	8	6	-	-	2	-	-	1	32	-	1	-	53	84
Temporary total:																
Cement 3/	15	81	107	20	14	7	21	2	1	5	36	3	35	-	347	404
Granite	6	29	53	4	-	3	13	-	-	2	19	1	14	-	144	269
Limestone	29	134	250	59	11	13	88	-	2	9	112	1	67	1	776	1,728
Limestone (chief product, lime)	2	54	68	16	2	8	26	-	-	1	19	1	59	1	257	350
Marble	1	4	20	3	2	1	5	-	-	-	7	-	8	-	51	81
Sandstone	4	32	41	9	1	1	11	-	-	2	18	-	3	-	122	202
Slate	-	2	3	1	-	-	-	-	-	-	-	-	1	-	7	24
Traprock	5	21	38	7	6	4	8	-	-	2	19	1	16	-	127	297
Miscellaneous stone	1	7	24	6	-	2	9	-	-	1	8	-	8	-	66	112
Total	63	364	604	125	36	39	181	2	3	22	238	7	211	2	1,897	3,467
Grand total:																
Fatal	4	3	2	-	-	-	4	1	1	1	5	-	-	-	21	58
Permanent total	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	2
Permanent partial	1	3	11	8	-	-	3	-	-	1	35	-	1	-	63	100
Temporary total	65	379	689	135	38	42	186	2	3	22	255	8	219	2	2,045	3,791
Total nonfatal	66	383	700	143	38	42	189	2	3	23	290	8	220	2	2,109	3,893

1/ No injuries occurred in stones not listed.
2/ Same as nondimension stone.
3/ Includes limestone or other stones used in manufacturing cement.

TABLE B-12. - Injury experience and worktime data at stone quarries and mills in the United States, by dimension stone, crushed and broken stone, and kind of stone, 1971

Kind of stone	Injuries						Frequency rates per million man-hours						Severity rates per million man-hours					
	Fatal			Nonfatal			Fatal			Nonfatal			Fatal			Nonfatal		
	Quarries	Mills	Total	Quarries	Mills	Total	Quarries	Mills	Total	Quarries	Mills	Total	Quarries	Mills	Total	Quarries	Mills	Total
Dimension stone:																		
Cement 1/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granite	-	-	-	78	70	148	-	-	-	38.29	27.14	32.06	-	-	-	744	701	720
Limestone	-	-	-	34	25	59	-	-	-	44.59	30.09	37.03	-	-	-	1,803	755	1,256
Limestone (chief product, lime)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marble	1	-	1	17	30	47	2.73	-	0.70	46.45	28.34	32.99	16,394	-	4,211	997	429	575
Sandstone	-	-	-	25	17	42	-	-	-	61.65	23.45	37.16	-	-	-	1,931	124	772
Slate	-	-	-	25	14	39	-	-	-	56.47	21.60	35.75	-	-	-	6,903	1,338	3,596
Traprock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous stone	-	-	-	3	2	5	-	-	-	78.40	943.40	123.81	-	-	-	993	7,075	1,312
Total or average	1	-	1	182	158	340	.25	-	.10	44.77	26.82	34.15	1,476	-	603	1,755	655	1,104
Crushed and broken stone 2/:																		
Cement 1/	3	3	6	57	362	419	.50	.06	.11	9.59	7.49	7.72	3,028	372	663	475	431	436
Granite	4	-	4	126	149	275	.58	-	.32	18.39	26.63	22.09	3,502	-	1,928	505	1,152	796
Limestone	24	12	36	978	804	1,782	.61	.42	.53	25.01	28.40	26.43	3,683	2,543	3,204	1,153	1,701	1,383
Limestone (chief product, lime)	2	4	6	94	259	353	.51	.31	.36	24.11	20.09	21.03	3,078	1,862	2,144	824	562	623
Marble	-	-	-	30	51	81	-	-	-	33.93	26.82	29.08	-	-	-	591	702	667
Sandstone	-	-	-	82	124	206	-	-	-	24.01	30.13	27.35	-	-	-	789	856	826
Slate	-	-	-	17	7	24	-	-	-	51.86	9.87	23.14	-	-	-	1,092	278	535
Traprock	2	-	2	171	128	299	.35	-	.22	29.67	39.22	33.12	2,082	-	1,329	575	822	665
Miscellaneous stone	1	2	3	47	67	114	.54	1.34	.89	25.25	44.79	33.96	3,223	8,022	5,362	687	1,177	905
Total or average	36	21	57	1,602	1,951	3,553	.53	.20	.33	23.54	18.30	20.34	3,174	1,182	1,958	922	865	887
Grand total or average	37	21	58	1,784	2,109	3,893	.51	.19	.31	24.74	18.75	21.09	3,079	1,120	1,885	969	854	899

1/ Includes limestone or other stones used in manufacturing cement.
2/ Same as nondimension stone.

TABLE B-12. - Injury experience and worktime data at stone quarries and mills in the United States, by dimension stone, crushed and broken stone, and kind of stone, 1971 - Continued

Kind of stone	Active operations			Average men working daily			Average days active			Man-days worked			Man-hours worked		
	Quarries	Mills	Total	Quarries	Mills	Total	Quarries	Mills	Total	Quarries	Mills	Total	Quarries	Mills	Total
Dimension stone:															
Cement 1/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granite	80	42	122	1,059	1,257	2,316	237	246	242	250,833	309,353	560,186	2,037,132	2,578,764	4,615,896
Limestone	52	31	83	436	426	862	216	239	227	94,280	101,622	195,902	762,476	830,900	1,593,376
Limestone (chief product, lime)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marble	13	10	23	196	533	729	235	249	245	46,012	132,687	178,699	365,992	1,058,706	1,424,698
Sandstone	86	32	118	273	398	671	187	228	211	50,915	90,704	141,619	405,515	724,882	1,130,397
Slate	23	20	43	226	313	539	245	245	245	55,339	76,780	132,119	442,731	648,198	1,090,929
Traprock	3	2	5	8	26	34	200	230	223	1,603	5,982	7,585	12,829	47,854	60,683
Miscellaneous stone	18	3	21	28	4	32	171	66	158	4,797	265	5,062	38,264	2,120	40,384
Total or average	275	140	415	2,226	2,957	5,183	226	243	236	503,779	717,393	1,221,172	4,064,939	5,891,424	9,956,363
Crushed and broken stone 2/:															
Cement 1/	197	194	391	2,858	18,014	20,872	260	334	324	742,611	6,020,800	6,763,411	5,943,661	48,326,098	54,269,759
Granite	394	234	628	3,195	2,512	5,707	242	253	247	772,796	634,763	1,407,559	6,852,331	5,596,236	12,448,567
Limestone	2,668	1,971	4,639	18,980	12,982	31,962	237	251	243	4,492,377	3,260,588	7,752,965	39,098,554	28,314,192	67,412,746
Limestone (chief product, lime)	103	151	254	1,788	4,989	6,777	269	321	308	481,531	1,603,570	2,085,101	3,899,021	12,890,317	16,789,338
Marble	88	38	126	457	913	1,370	241	259	253	110,126	236,704	346,830	884,228	1,901,313	2,785,541
Sandstone	452	260	712	1,824	1,927	3,751	227	262	245	413,449	504,997	918,446	3,415,408	4,115,398	7,530,806
Slate	41	28	69	168	339	507	234	265	254	39,230	89,698	128,928	327,830	709,421	1,037,251
Traprock	667	411	1,078	3,198	1,669	4,867	217	236	224	694,468	394,119	1,088,587	5,763,907	3,263,730	9,027,637
Miscellaneous stone	294	131	425	1,070	740	1,810	213	250	228	228,007	184,925	412,932	1,861,339	1,495,819	3,357,158
Total or average	4,904	3,418	8,322	33,538	44,085	77,623	238	293	269	7,974,595	12,930,164	20,904,759	68,046,279	106,612,524	174,658,803
Grand total or average	5,179	3,558	8,737	35,764	47,042	82,806	237	290	267	8,478,374	13,647,557	22,125,931	72,111,218	112,503,948	184,615,166

1/ Includes limestone or other stones used in manufacturing cement.
2/ Same as nondimension stone.

TABLE B-13. - Injury experience and worktime data on dimension stone and crushed and broken stone quarries and mills in the United States, by State, 1971

State	Dimension stone								Crushed and broken stone							
	Injuries		Frequency rates per million man-hours		Severity rates per million man-hours		Average men working daily	Man-hours worked	Injuries		Frequency rates per million man-hours		Severity rates per million man-hours		Average men working daily	Man-hours worked
	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal			Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal		
Alabama	-	3	-	23.72	-	482	65	126,500	-	48	-	9.02	-	1,462	2,254	5,321,251
Alaska	-	-	-	-	-	-	-	-	-	17	-	24.80	-	516	359	685,403
Arizona	-	-	-	-	-	-	7	5,840	-	26	-	21.93	-	461	482	1,185,325
Arkansas	-	1	-	21.18	-	741	23	47,214	1	77	0.31	23.53	1,833	631	1,408	3,272,833
California	-	1	-	14.08	-	28	47	71,038	7	169	.68	16.40	4,077	631	4,286	10,302,150
Colorado	-	1	-	37.33	-	112	25	26,785	-	27	-	19.66	-	1,533	711	1,373,447
Connecticut	-	-	-	-	-	-	5	10,400	-	52	-	73.30	-	1,091	358	709,426
Florida	-	-	-	-	-	-	-	-	6	163	.80	21.64	4,779	998	2,838	7,533,299
Georgia	-	16	-	24.10	-	938	348	663,848	2	132	.33	21.83	1,985	565	2,564	6,046,802
Hawaii	-	-	-	-	-	-	-	-	-	60	-	51.81	-	724	542	1,158,090
Idaho	-	-	-	-	-	-	-	-	-	14	-	29.42	-	456	298	475,852
Illinois	-	-	-	-	-	-	-	-	4	203	.49	24.86	2,939	918	3,673	8,167,273
Indiana	-	46	-	46.79	-	1,662	524	983,013	1	77	.18	14.09	1,098	429	2,231	5,464,164
Iowa	-	-	-	-	-	-	-	-	4	110	.67	18.35	4,004	1,678	2,951	5,994,522
Kansas	-	1	-	16.69	-	2,320	36	59,907	-	32	-	8.58	-	255	1,701	3,729,188
Kentucky	-	-	-	-	-	-	-	-	1	195	.20	38.96	1,199	985	2,253	5,005,514
Louisiana	-	-	-	-	-	-	-	-	-	56	-	34.48	-	746	524	1,624,078
Maine	-	12	-	48.69	-	341	126	246,440	2	12	3.97	23.83	23,828	582	194	503,614
Maryland	-	5	-	117.32	-	1,595	21	42,620	-	36	-	12.72	-	598	1,234	2,829,886
Massachusetts	-	15	-	26.02	-	652	310	576,480	-	30	-	24.95	-	698	560	1,202,608
Michigan	-	-	-	-	-	-	9	8,316	1	82	.14	11.73	858	381	3,082	6,992,754
Minnesota	-	11	-	25.80	-	256	214	426,386	-	88	-	44.27	-	1,176	1,007	1,987,591
Mississippi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	122	229,777
Missouri	-	24	-	41.87	-	689	292	573,189	4	195	.46	22.40	2,757	880	3,891	8,704,843
Montana	-	-	-	-	-	-	-	-	-	13	-	14.43	-	303	466	900,736
Nebraska	-	-	-	-	-	-	-	-	-	34	-	25.30	-	2,631	531	1,343,684
Nevada	-	-	-	-	-	-	-	-	-	16	-	22.48	-	770	298	711,787
New Hampshire	-	4	-	64.52	-	435	31	62,000	-	11	-	34.19	-	755	161	321,707
New Jersey	-	-	-	-	-	-	-	-	-	78	-	39.92	-	832	933	1,953,717
New Mexico	-	-	-	-	-	-	7	7,584	-	12	-	26.49	-	1,035	261	452,980
New York	-	9	-	49.47	-	1,402	91	181,946	-	97	-	14.93	-	520	2,910	6,497,232
North Carolina	1	20	1.44	28.76	8,627	975	359	695,464	2	35	.59	10.37	3,555	275	1,653	3,375,161
North Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	7,462
Ohio	-	24	-	34.40	-	877	376	697,761	3	157	.28	14.86	1,704	552	4,690	10,564,191
Oklahoma	-	3	-	31.11	-	2,240	52	96,420	1	87	.33	28.84	1,989	2,709	1,345	3,016,671
Oregon	-	1	-	297.62	-	4,167	3	3,360	-	83	-	31.90	-	609	1,393	2,601,712
Pennsylvania	-	24	-	27.65	-	2,708	449	867,948	2	256	.12	15.74	738	644	7,045	16,264,413
Rhode Island	-	-	-	-	-	-	-	-	-	4	-	43.44	-	3,312	52	92,080
South Carolina	-	2	-	196.08	-	1,373	5	10,200	2	22	1.02	11.26	6,142	2,033	809	1,953,897
South Dakota	-	10	-	30.58	-	743	147	327,012	-	22	-	26.40	-	828	393	833,348
Tennessee	-	13	-	53.00	-	930	131	245,289	3	110	.51	18.63	3,048	858	2,624	5,905,219
Texas	-	16	-	43.40	-	570	157	368,655	2	217	.19	20.21	1,118	1,256	4,154	10,735,693
Utah	-	-	-	-	-	-	9	8,824	-	11	-	14.98	-	355	337	734,544
Vermont	-	50	-	26.99	-	950	952	1,852,760	1	10	1.54	15.41	9,243	296	312	649,121
Virginia	-	8	-	55.60	-	2,537	68	143,895	3	205	.39	26.84	2,356	1,601	3,474	7,638,483
Washington	-	-	-	-	-	-	14	15,038	3	27	1.79	16.13	10,756	383	1,142	1,673,464
West Virginia	-	-	-	-	-	-	10	5,480	2	58	.75	21.84	4,518	1,777	1,305	2,655,798
Wisconsin	-	20	-	40.10	-	984	270	498,751	-	75	-	26.76	-	540	1,535	2,802,308
Wyoming	-	-	-	-	-	-	-	-	-	12	-	25.33	-	445	273	473,705
Total or average	1	340	.10	34.15	603	1,104	5,183	9,956,363	57	3,553	.33	20.34	1,958	887	77,623	174,658,803

TABLE B-14. - Injury experience and worktime data on stone quarries and mills in the United States, by dimension stone, crushed and broken stone, and employment size group, 1971

Stone and size group	Injuries			Frequency rates per million man-hours			Severity rates per million man-hours			Active operations	Average men working daily	Average days active	Man-days worked	Man-hours worked
	Fatal	Nonfatal	Total	Fatal	Nonfatal	Total	Fatal	Nonfatal	Total					
Dimension stone:														
1-4	-	22	22	-	29.57	29.57	-	380	380	205	453	204	92,546	743,928
5-9	1	53	54	0.96	50.97	51.93	5,770	1,597	7,368	92	600	212	127,345	1,039,796
10-19	-	49	49	-	36.86	36.86	-	2,595	2,595	52	688	235	161,551	1,329,439
20-34	-	52	52	-	37.84	37.84	-	1,299	1,299	28	737	231	170,169	1,374,249
35-49	-	59	59	-	43.67	43.67	-	1,750	1,750	17	674	247	166,292	1,351,071
50-99	-	66	66	-	31.28	31.28	-	381	381	15	1,060	245	259,959	2,110,171
100-149	-	11	11	-	21.05	21.05	-	272	272	2	241	246	59,186	522,488
150-249	-	28	28	-	18.85	18.85	-	338	338	4	730	252	184,124	1,485,221
Total or average	1	340	341	.10	34.15	34.25	603	1,104	1,707	415	5,183	236	1,221,172	9,956,363
Crushed and broken stone 1/:														
1-4	7	664	671	.36	33.85	34.21	2,141	1,627	3,768	4,659	10,373	220	2,284,586	19,616,908
5-9	10	727	737	.40	28.93	29.33	2,388	1,138	3,526	1,870	12,532	235	2,948,145	25,127,555
10-19	15	668	683	.53	23.73	24.26	3,197	867	4,063	1,035	13,515	244	3,292,074	28,154,489
20-34	7	542	549	.31	24.25	24.56	1,879	1,024	2,903	386	9,903	265	2,624,491	22,350,223
35-49	3	204	207	.32	21.81	22.13	1,925	758	2,682	97	3,982	283	1,125,234	9,352,586
50-99	11	397	408	.34	12.10	12.43	2,011	873	2,884	180	12,968	311	4,027,787	32,820,598
100-149	-	212	212	-	11.09	11.09	-	333	333	62	7,467	318	2,372,472	19,121,309
150-249	4	100	104	.36	9.11	9.47	2,186	344	2,530	24	4,198	322	1,352,836	10,978,054
250 or more	-	39	39	-	5.46	5.46	-	176	176	9	2,685	327	877,134	7,137,081
Total or average	57	3,553	3,610	.33	20.34	20.67	1,958	887	2,845	8,322	77,623	269	20,904,759	174,658,803
Grand total or average	58	3,893	3,951	.31	21.09	21.40	1,885	899	2,784	8,737	82,806	267	22,125,931	184,615,166

1/ Same as nondimension stone.

TABLE B-15. - Injury experience and worktime data by general work location at stone quarries and mills in the United States, by kind of stone, 1971

Kind of stone	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Injuries															
Cement 1/	-	-	-	3	-	3	3	6	1	1	2	55	-	57	362	419
Granite	-	-	-	4	-	4	-	4	-	-	-	204	-	204	219	423
Limestone	5	1	6	18	-	24	12	36	70	51	121	811	80	1,012	829	1,841
Limestone (chief product, lime)	1	-	1	1	-	2	4	6	28	7	35	59	-	94	259	353
Marble	-	-	-	1	-	1	-	1	22	1	23	24	-	47	81	128
Sandstone	-	-	-	-	-	-	-	-	7	-	7	100	-	107	141	248
Slate	-	-	-	-	-	-	-	-	2	1	3	39	-	42	21	63
Traprock	-	-	-	2	-	2	-	2	-	-	-	171	-	171	128	299
Miscellaneous stone	-	-	-	1	-	1	2	3	-	-	-	50	-	50	69	119
Total	6	1	7	30	-	37	21	58	130	61	191	1,513	80	1,784	2,109	3,893
	Frequency rates per million man-hours															
Cement 1/	-	-	-	0.54	-	0.50	0.06	0.11	2.86	19.18	4.98	9.92	-	9.59	7.49	7.72
Granite	-	-	-	.45	-	.45	-	.23	-	-	-	23.07	-	22.95	26.79	24.79
Limestone	2.00	1.24	1.82	.51	-	.60	.41	.52	28.05	63.09	36.62	23.03	59.56	25.39	28.44	26.68
Limestone (chief product, lime)	1.14	-	.89	.36	-	.51	.31	.36	31.93	27.70	30.98	21.31	-	24.11	20.09	21.03
Marble	-	-	-	1.25	-	.80	-	.24	60.69	11.67	51.32	29.92	-	37.59	27.36	30.40
Sandstone	-	-	-	-	-	-	-	-	51.05	-	38.72	27.47	-	28.00	29.13	28.63
Slate	-	-	-	-	-	-	-	-	78.08	99.21	84.04	53.07	-	54.51	15.47	29.60
Traprock	-	-	-	.35	-	.35	-	.22	-	-	-	29.64	-	29.60	38.65	32.90
Miscellaneous stone	-	-	-	.53	-	.53	1.34	.88	-	-	-	26.39	-	26.32	46.06	35.03
Combined rate	1.40	.79	1.26	.46	-	.51	.19	.31	30.31	48.24	34.39	23.20	59.35	24.74	18.75	21.09
	Severity rates per million man-hours															
Cement 1/	-	-	-	3,248	-	3,028	372	663	140	1,688	341	485	-	475	431	436
Granite	-	-	-	2,714	-	2,700	-	1,406	-	-	-	562	-	559	1,010	775
Limestone	12,021	7,422	10,896	3,067	-	3,613	2,470	3,130	790	1,724	1,018	1,170	1,409	1,166	1,674	1,380
Limestone (chief product, lime)	6,841	-	5,311	2,167	-	3,078	1,862	2,144	1,153	400	984	758	-	824	562	623
Marble	-	-	-	7,481	-	4,799	-	1,425	908	93	752	687	-	710	604	636
Sandstone	-	-	-	-	-	-	-	-	1,167	-	885	912	-	910	746	819
Slate	-	-	-	-	-	-	-	-	586	4,365	1,653	4,565	-	4,431	784	2,104
Traprock	-	-	-	2,080	-	2,077	-	1,320	-	-	-	575	-	574	810	660
Miscellaneous stone	-	-	-	3,166	-	3,159	8,011	5,298	-	-	-	695	-	693	1,185	910
Combined rate	8,393	4,745	7,562	2,760	-	3,079	1,120	1,885	824	1,293	931	963	1,404	969	854	899

1/ Includes limestone or stones used in manufacturing cement.

TABLE B-15. - Injury experience and worktime data by general work location at stone quarries and mills in the United States, by kind of stone, 1971 - Continued

Kind of stone	Active operations		Average men working daily								Average days active				
	Quarries	Mills	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines	Open quarries	Other surface mining	Total mining activities	Mills
			Underground	Surface	Total										
Cement 1/	197	194	145	21	166	2,692	-	2,858	18,014	20,872	302	257	-	260	334
Granite	474	276	17	5	22	4,232	-	4,254	3,769	8,023	267	240	-	241	250
Limestone	2,720	2,002	1,229	389	1,618	17,380	418	19,416	13,408	32,824	244	234	317	236	251
Limestone (chief product, lime)	103	151	398	104	502	1,286	-	1,788	4,989	6,777	278	266	-	269	321
Marble	101	48	175	42	217	436	-	653	1,446	2,099	258	230	-	239	255
Sandstone	538	292	59	17	76	2,021	-	2,097	2,325	4,422	279	219	-	221	256
Slate	64	48	13	5	18	376	-	394	652	1,046	248	240	-	240	255
Traprock	670	413	2	1	3	3,203	-	3,206	1,695	4,901	277	217	-	217	236
Miscellaneous stone	312	134	-	-	-	1,094	4	1,098	744	1,842	-	212	149	212	249
Total or average	5,179	3,558	2,038	584	2,622	32,720	422	35,764	47,042	82,806	256	234	315	237	290

Kind of stone	Man-days worked								Man-hours worked							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
Cement 1/	43,642	6,509	50,151	692,460	-	742,611	6,020,800	6,763,411	349,658	52,131	401,789	5,541,872	-	5,943,661	48,326,098	54,269,759
Granite	4,629	1,239	5,868	1,017,761	-	1,023,629	944,116	1,967,745	37,021	9,912	46,933	8,842,530	-	8,889,463	8,175,000	17,064,463
Limestone	299,289	95,087	394,376	4,059,823	132,458	4,586,657	3,362,210	7,948,867	2,495,575	808,384	3,303,959	35,213,827	1,343,244	39,861,030	29,145,092	69,006,122
Limestone (chief product, lime)	109,147	30,561	139,708	341,823	-	481,531	1,603,570	2,085,101	877,053	252,750	1,129,803	2,769,218	-	3,899,021	12,890,317	16,789,338
Marble	45,230	10,708	55,938	100,200	-	156,138	369,391	525,529	362,486	85,665	448,151	802,069	-	1,250,220	2,960,019	4,210,239
Sandstone	16,201	5,008	21,209	443,155	-	464,364	595,701	1,060,065	137,109	43,670	180,779	3,640,144	-	3,820,923	4,840,280	8,661,203
Slate	3,202	1,260	4,462	90,107	-	94,569	166,478	261,047	25,616	10,080	35,696	734,865	-	770,561	1,357,619	2,128,180
Traprock	582	250	832	695,239	-	696,071	400,101	1,096,172	4,655	2,000	6,655	5,770,081	-	5,776,736	3,311,584	9,088,320
Miscellaneous stone	-	-	-	232,207	597	232,804	185,190	417,994	-	-	-	1,894,839	4,764	1,899,603	1,497,939	3,397,542
Total	521,922	150,622	672,544	7,672,775	133,055	8,478,374	13,647,557	22,125,931	4,289,173	1,264,592	5,553,765	65,209,445	1,348,008	72,111,218	112,503,948	184,615,166

1/ Includes limestone or other stones used in manufacturing cement.

TABLE B-16. - Injury experience and worktime data by general work location at cement operations in the United States, by State, 1971

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Injuries															
Alabama	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	10
Arizona	-	-	-	-	-	-	-	-	-	-	-	1	-	1	8	9
Arkansas	-	-	-	-	-	-	-	-	-	-	-	1	-	1	8	9
California	-	-	-	1	-	1	-	1	-	1	1	7	-	8	20	28
Colorado	-	-	-	-	-	-	-	-	-	-	-	1	-	1	6	7
Florida	-	-	-	1	-	1	-	1	-	-	-	5	-	5	10	15
Georgia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4
Hawaii	-	-	-	-	-	-	-	-	-	-	-	1	-	1	6	7
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
Illinois	-	-	-	-	-	-	1	1	-	-	-	-	-	-	9	9
Indiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	6
Iowa	-	-	-	-	-	-	1	1	-	-	-	-	-	-	17	17
Kansas	-	-	-	-	-	-	-	-	-	-	-	1	-	1	5	6
Kentucky	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
Maine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	2	-	2	4	6
Michigan	-	-	-	-	-	-	-	-	-	-	-	3	-	3	35	38
Minnesota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Mississippi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	-	-	-	-	-	-	-	-	-	-	6	-	6	13	19
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Nebraska	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8
New Mexico	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
New York	-	-	-	-	-	-	-	-	-	-	-	8	-	8	26	34
North Carolina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ohio	-	-	-	1	-	1	-	1	-	-	-	1	-	1	5	6
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	29	29
Pennsylvania	-	-	-	-	-	-	-	-	1	-	1	5	-	6	38	44
South Carolina	-	-	-	-	-	-	1	1	-	-	-	1	-	1	4	5
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4
Tennessee	-	-	-	-	-	-	-	-	-	-	-	2	-	2	5	7
Texas	-	-	-	-	-	-	-	-	-	-	-	4	-	4	33	37
Utah	-	-	-	-	-	-	-	-	-	-	-	3	-	3	6	9
Virginia	-	-	-	-	-	-	-	-	-	-	-	2	-	2	24	26
Washington	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
West Virginia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
Total	-	-	-	3	-	3	3	6	1	1	2	55	-	57	362	419

TABLE B-16. - Injury experience and worktime data by general work location at cement operations in the United States, by State, 1971 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Frequency rates per million man-hours															
Alabama	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.09	4.71
Arizona	-	-	-	-	-	-	-	-	-	-	-	13.97	-	13.97	12.83	12.94
Arkansas	-	-	-	-	-	-	-	-	-	-	-	25.27	-	25.27	13.93	14.66
California	-	-	-	1.38	-	1.17	-	0.14	-	78.49	7.85	9.64	-	9.38	3.27	4.01
Colorado	-	-	-	-	-	-	-	-	-	-	-	13.89	-	13.89	9.95	10.37
Florida	-	-	-	8.20	-	8.20	-	.61	-	-	-	41.00	-	41.00	6.57	9.12
Georgia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.98	4.56
Hawaii	-	-	-	-	-	-	-	-	-	-	-	24.84	-	24.84	12.16	13.12
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19.35	17.72
Illinois	-	-	-	-	-	-	0.96	.84	-	-	-	-	-	-	8.67	7.54
Indiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.79	2.65
Iowa	-	-	-	-	-	-	.56	.51	-	-	-	-	-	-	9.58	8.65
Kansas	-	-	-	-	-	-	-	-	-	-	-	5.19	-	5.19	3.93	4.10
Kentucky	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.17	4.15
Maine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	19.00	-	19.00	7.31	9.19
Michigan	-	-	-	-	-	-	-	-	-	-	-	8.18	-	8.18	11.60	11.23
Minnesota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.67	3.67
Mississippi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	-	-	-	-	-	-	-	-	-	-	16.47	-	16.47	8.03	9.58
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.10	2.69
Nebraska	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.31	4.62
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44.43	40.39
New Mexico	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.68	5.88
New York	-	-	-	-	-	-	-	-	-	-	-	19.63	-	19.63	8.50	9.81
North Carolina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ohio	-	-	-	2.70	-	1.95	-	.40	-	-	-	2.70	-	1.95	2.54	2.42
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.92	4.49
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	63.51	62.37
Pennsylvania	-	-	-	-	-	-	-	-	8.24	-	7.63	9.18	-	8.88	6.84	7.06
South Carolina	-	-	-	-	-	-	1.48	1.37	-	-	-	17.14	-	17.14	5.93	6.83
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.86	13.90
Tennessee	-	-	-	-	-	-	-	-	-	-	-	9.76	-	9.76	2.91	3.64
Texas	-	-	-	-	-	-	-	-	-	-	-	13.95	-	13.95	8.13	8.52
Utah	-	-	-	-	-	-	-	-	-	-	-	98.49	-	98.49	18.99	25.98
Virginia	-	-	-	-	-	-	-	-	-	-	-	9.61	-	9.61	36.61	30.10
Washington	-	-	-	-	-	-	-	-	-	-	-	16.55	-	16.55	-	2.07
West Virginia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.35	6.11
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.00	10.82
Combined rate	-	-	-	.54	-	.50	.06	.11	2.86	19.18	4.98	9.92	-	9.59	7.49	7.72

TABLE B-16. - Injury experience and worktime data by general work location at cement operations in the United States, by State, 1971 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Severity rates per million man-hours															
Alabama	-	-	-	-	-	-	-	-	-	-	-	-	-	-	386	358
Arizona	-	-	-	-	-	-	-	-	-	-	-	447	-	447	239	260
Arkansas	-	-	-	-	-	-	-	-	-	-	-	758	-	758	312	340
California	-	-	-	8,266	-	7,032	-	860	-	6,907	691	869	-	843	178	259
Colorado	-	-	-	-	-	-	-	-	-	-	-	1,222	-	1,222	2,675	2,520
Florida	-	-	-	49,202	-	49,202	-	3,649	-	-	-	3,813	-	3,813	182	451
Georgia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	560	513
Hawaii	-	-	-	-	-	-	-	-	-	-	-	695	-	695	140	182
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	435	399
Illinois	-	-	-	-	-	-	5,782	5,025	-	-	-	-	-	-	215	187
Indiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68	64
Iowa	-	-	-	-	-	-	3,380	3,054	-	-	-	-	-	-	546	493
Kansas	-	-	-	-	-	-	-	-	-	-	-	228	-	228	153	163
Kentucky	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	142	141
Maine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	266	-	266	210	219
Michigan	-	-	-	-	-	-	-	-	-	-	-	235	-	235	357	344
Minnesota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	176	176
Mississippi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	-	-	-	-	-	-	-	-	-	-	242	-	242	1,279	1,089
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	56	48
Nebraska	-	-	-	-	-	-	-	-	-	-	-	-	-	-	182	159
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,538	1,398
New Mexico	-	-	-	-	-	-	-	-	-	-	-	-	-	-	87	76
New York	-	-	-	-	-	-	-	-	-	-	-	798	-	798	224	291
North Carolina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ohio	-	-	-	16,188	-	11,672	-	2,416	-	-	-	32	-	23	54	48
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	126	114
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,091	1,071
Pennsylvania	-	-	-	-	-	-	-	-	404	-	374	617	-	570	436	451
South Carolina	-	-	-	-	-	-	8,900	8,191	-	-	-	651	-	651	224	258
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	602	563
Tennessee	-	-	-	-	-	-	-	-	-	-	-	63	-	63	83	81
Texas	-	-	-	-	-	-	-	-	-	-	-	820	-	820	1,405	1,367
Utah	-	-	-	-	-	-	-	-	-	-	-	1,215	-	1,215	272	355
Virginia	-	-	-	-	-	-	-	-	-	-	-	346	-	346	952	806
Washington	-	-	-	-	-	-	-	-	-	-	-	1,622	-	1,622	-	203
West Virginia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	368	305
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	372	335
Combined rate	-	-	-	3,248	-	3,028	372	663	140	1,688	341	485	-	475	431	436

TABLE B-16. - Injury experience and worktime data by general work location at cement operations in the United States, by State, 1971 - Continued

State	Active operations		Average men working daily							Average days active				
	Quarries	Mills	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines	Open quarries	Other surface mining	Total mining activities	Mills
			Underground	Surface	Total										
Alabama	10	11	-	-	-	73	-	73	774	847	-	258	-	258	316
Arizona	3	2	-	-	-	26	-	26	215	241	-	344	-	344	363
Arkansas	3	5	-	-	-	21	-	21	198	219	-	236	-	236	363
California	20	15	45	5	50	375	-	425	2,137	2,562	317	241	-	250	356
Colorado	3	3	-	-	-	33	-	33	232	265	-	273	-	273	325
Florida	4	4	-	-	-	55	-	55	530	585	-	277	-	277	359
Georgia	5	4	-	-	-	41	-	41	286	327	-	220	-	220	351
Hawaii	2	3	-	-	-	20	-	20	188	208	-	266	-	266	334
Idaho	1	1	-	-	-	4	-	4	51	55	-	298	-	298	253
Illinois	3	3	-	-	-	78	-	78	416	494	-	256	-	256	347
Indiana	4	5	-	-	-	56	-	56	726	782	-	259	-	259	348
Iowa	6	5	-	-	-	98	-	98	608	706	-	247	-	247	365
Kansas	10	7	-	-	-	95	-	95	547	642	-	259	-	259	288
Kentucky	1	1	-	-	-	24	-	24	184	208	-	270	-	270	365
Louisiana	1	2	-	-	-	1	-	1	164	165	-	305	-	305	365
Maine	1	1	-	-	-	20	-	20	121	141	-	266	-	266	365
Maryland	5	4	-	-	-	50	-	50	189	239	-	263	-	263	362
Michigan	10	11	-	-	-	165	-	165	1,228	1,393	-	278	-	278	304
Minnesota	-	1	-	-	-	-	-	-	93	93	-	-	-	-	365
Mississippi	3	2	-	-	-	18	-	18	92	110	-	232	-	232	229
Missouri	7	7	-	-	-	164	-	164	578	742	-	278	-	278	350
Montana	2	2	-	-	-	24	-	24	161	185	-	252	-	252	251
Nebraska	1	2	-	-	-	46	-	46	204	250	-	229	-	229	346
Nevada	2	1	-	-	-	9	-	9	62	71	-	251	-	251	363
New Mexico	1	1	-	-	-	10	-	10	74	84	-	253	-	253	253
New York	10	11	-	-	-	196	-	196	1,086	1,282	-	260	-	260	352
North Carolina	1	1	-	-	-	29	-	29	82	111	-	259	-	259	365
Ohio	12	11	46	12	58	176	-	234	896	1,130	309	263	-	275	275
Oklahoma	5	4	-	-	-	39	-	39	341	380	-	252	-	252	298
Oregon	1	3	-	-	-	4	-	4	200	204	-	260	-	260	285
Pennsylvania	18	20	54	4	58	263	-	321	2,009	2,330	282	253	-	259	342
South Carolina	2	2	-	-	-	27	-	27	228	255	-	264	-	264	365
South Dakota	1	1	-	-	-	12	-	12	128	140	-	194	-	194	263
Tennessee	6	7	-	-	-	93	-	93	641	734	-	281	-	281	335
Texas	17	18	-	-	-	134	-	134	1,402	1,536	-	268	-	268	362
Utah	2	2	-	-	-	15	-	15	110	125	-	254	-	254	359
Virginia	5	3	-	-	-	103	-	103	235	338	-	253	-	253	349
Washington	3	3	-	-	-	32	-	32	184	216	-	236	-	236	287
West Virginia	1	1	-	-	-	50	-	50	204	254	-	208	-	208	250
Wisconsin	-	3	-	-	-	-	-	-	128	128	-	-	-	-	278
Wyoming	5	1	-	-	-	13	-	13	82	95	-	175	-	175	254
Total or average	197	194	145	21	166	2,692	-	2,858	18,014	20,872	302	257	-	260	334

TABLE B-16. - Injury experience and worktime data by general work location at cement operations in the United States, by State, 1971 - Continued

State	Man-days worked							Man-hours worked						
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
Alabama	-	-	-	18,867	-	18,867	244,843	263,710	-	-	-	157,597	-	157,597	1,964,516	2,122,113
Arizona	-	-	-	8,947	-	8,947	77,963	86,910	-	-	-	71,580	-	71,580	623,705	695,285
Arkansas	-	-	-	4,946	-	4,946	71,806	76,752	-	-	-	39,565	-	39,565	574,449	614,014
California	14,265	1,585	15,850	90,551	-	106,401	759,918	866,319	114,644	12,740	127,384	725,852	-	853,236	6,125,535	6,978,771
Colorado	-	-	-	9,000	-	9,000	75,340	84,340	-	-	-	72,001	-	72,001	602,726	674,727
Florida	-	-	-	15,244	-	15,244	190,302	205,546	-	-	-	121,947	-	121,947	1,522,424	1,644,371
Georgia	-	-	-	9,025	-	9,025	100,494	109,519	-	-	-	72,535	-	72,535	803,994	876,529
Hawaii	-	-	-	5,321	-	5,321	62,812	68,133	-	-	-	40,263	-	40,263	493,474	533,737
Idaho	-	-	-	1,192	-	1,192	12,903	14,095	-	-	-	9,530	-	9,530	103,361	112,891
Illinois	-	-	-	19,963	-	19,963	144,510	164,473	-	-	-	156,262	-	156,262	1,037,714	1,193,976
Indiana	-	-	-	14,505	-	14,505	252,482	266,987	-	-	-	116,044	-	116,044	2,150,924	2,266,968
Iowa	-	-	-	24,243	-	24,243	221,865	246,108	-	-	-	189,822	-	189,822	1,774,930	1,964,752
Kansas	-	-	-	24,637	-	24,637	157,667	182,304	-	-	-	192,763	-	192,763	1,271,524	1,464,287
Kentucky	-	-	-	6,490	-	6,490	67,340	73,830	-	-	-	51,923	-	51,923	538,720	590,643
Louisiana	-	-	-	305	-	305	59,915	60,220	-	-	-	2,441	-	2,441	479,319	481,760
Maine	-	-	-	5,311	-	5,311	44,337	49,648	-	-	-	42,492	-	42,492	354,697	397,189
Maryland	-	-	-	13,159	-	13,159	68,428	81,587	-	-	-	105,268	-	105,268	547,423	652,691
Michigan	-	-	-	45,825	-	45,825	373,053	418,878	-	-	-	366,606	-	366,606	3,016,563	3,383,169
Minnesota	-	-	-	-	-	-	34,024	34,024	-	-	-	-	-	-	272,193	272,193
Mississippi	-	-	-	4,169	-	4,169	21,042	25,211	-	-	-	33,359	-	33,359	168,338	201,697
Missouri	-	-	-	45,534	-	45,534	202,432	247,966	-	-	-	364,277	-	364,277	1,619,455	1,983,732
Montana	-	-	-	6,040	-	6,040	40,372	46,412	-	-	-	48,320	-	48,320	322,976	371,296
Nebraska	-	-	-	10,536	-	10,536	70,613	81,149	-	-	-	84,290	-	84,290	564,904	649,194
Nevada	-	-	-	2,255	-	2,255	22,506	24,761	-	-	-	18,041	-	18,041	180,046	198,087
New Mexico	-	-	-	2,530	-	2,530	18,722	21,252	-	-	-	20,240	-	20,240	149,776	170,016
New York	-	-	-	50,929	-	50,929	382,281	433,210	-	-	-	407,449	-	407,449	3,058,263	3,465,712
North Carolina	-	-	-	7,522	-	7,522	29,977	37,499	-	-	-	60,176	-	60,176	239,818	299,994
Ohio	14,214	3,708	17,922	46,331	-	64,253	246,166	310,419	113,712	29,664	143,376	370,655	-	514,031	1,969,337	2,483,368
Oklahoma	-	-	-	9,833	-	9,833	101,580	111,413	-	-	-	78,669	-	78,669	812,648	891,317
Oregon	-	-	-	1,040	-	1,040	57,080	58,120	-	-	-	8,320	-	8,320	456,642	464,962
Pennsylvania	15,163	1,216	16,379	66,635	-	83,014	687,660	770,674	121,302	9,727	131,029	544,428	-	675,457	5,555,977	6,231,434
South Carolina	-	-	-	7,117	-	7,117	83,475	90,592	-	-	-	58,338	-	58,338	674,176	732,514
South Dakota	-	-	-	2,332	-	2,332	33,643	35,975	-	-	-	18,652	-	18,652	269,148	287,800
Tennessee	-	-	-	26,148	-	26,148	214,515	240,663	-	-	-	204,987	-	204,987	1,716,124	1,921,111
Texas	-	-	-	35,919	-	35,919	507,081	543,000	-	-	-	286,700	-	286,700	4,057,054	4,343,754
Utah	-	-	-	3,808	-	3,808	39,491	43,299	-	-	-	30,460	-	30,460	315,931	346,391
Virginia	-	-	-	26,026	-	26,026	81,942	107,968	-	-	-	208,216	-	208,216	655,534	863,750
Washington	-	-	-	7,553	-	7,553	52,782	60,335	-	-	-	60,421	-	60,421	422,250	482,671
West Virginia	-	-	-	10,400	-	10,400	50,994	61,394	-	-	-	83,205	-	83,205	407,955	491,160
Wisconsin	-	-	-	-	-	-	35,616	35,616	-	-	-	-	-	-	284,931	284,931
Wyoming	-	-	-	2,272	-	2,272	20,828	23,100	-	-	-	18,178	-	18,178	166,624	184,802
Total	43,642	6,509	50,151	692,460	-	742,611	6,020,800	6,763,411	349,658	52,131	401,789	5,541,872	-	5,943,661	48,326,098	54,269,759

TABLE B-17. - Injury experience and worktime data by general work location at granite operations in the United States, by State, 1971

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Injuries															
Alabama	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alaska	-	-	-	-	-	-	-	-	-	-	-	8	-	8	1	9
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arkansas	-	-	-	-	-	-	-	-	-	-	-	7	-	7	10	17
California	-	-	-	-	-	-	-	-	-	-	-	3	-	3	24	27
Colorado	-	-	-	-	-	-	-	-	-	-	-	2	-	2	2	4
Connecticut	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Georgia	-	-	-	1	-	1	-	1	-	-	-	48	-	48	32	80
Idaho	-	-	-	-	-	-	-	-	-	-	-	3	-	3	-	3
Maine	-	-	-	-	-	-	-	-	-	-	-	2	-	2	6	8
Maryland	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-	2
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	8	-	8	14	22
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Minnesota	-	-	-	-	-	-	-	-	-	-	-	10	-	10	37	47
Missouri	-	-	-	-	-	-	-	-	-	-	-	2	-	2	1	3
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nevada	-	-	-	-	-	-	-	-	-	-	-	4	-	4	1	5
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	5	-	5	7	12
New Jersey	-	-	-	-	-	-	-	-	-	-	-	8	-	8	8	16
New Mexico	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New York	-	-	-	-	-	-	-	-	-	-	-	3	-	3	1	4
North Carolina	-	-	-	2	-	2	-	2	-	-	-	14	-	14	18	32
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	1	-	1	6	7
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
South Carolina	-	-	-	1	-	1	-	1	-	-	-	8	-	8	8	16
South Dakota	-	-	-	-	-	-	-	-	-	-	-	10	-	10	6	16
Texas	-	-	-	-	-	-	-	-	-	-	-	6	-	6	14	20
Vermont	-	-	-	-	-	-	-	-	-	-	-	24	-	24	12	36
Virginia	-	-	-	-	-	-	-	-	-	-	-	12	-	12	8	20
Washington	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	12	-	12	1	13
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	4	-	4	-	4	-	-	-	204	-	204	219	423

TABLE 8-17. - Injury experience and worktime data by general work location at granite operations in the United States, by State, 1971 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Frequency rates per million man-hours															
Alabama	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alaska	-	-	-	-	-	-	-	-	-	-	-	21.96	-	21.96	13.34	20.49
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arkansas	-	-	-	-	-	-	-	-	-	-	-	18.20	-	18.20	21.66	20.09
California	-	-	-	-	-	-	-	-	-	-	-	11.73	-	11.73	93.03	52.56
Colorado	-	-	-	-	-	-	-	-	-	-	-	38.82	-	38.82	32.35	35.29
Connecticut	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27.11	14.51
Georgia	-	-	-	0.59	-	0.59	-	0.29	-	-	-	28.39	-	28.39	17.67	22.85
Idaho	-	-	-	-	-	-	-	-	-	-	-	25.78	-	20.39	-	20.09
Maine	-	-	-	-	-	-	-	-	-	-	-	39.73	-	39.73	35.36	36.36
Maryland	-	-	-	-	-	-	-	-	-	-	-	43.94	-	43.94	-	34.63
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	18.33	-	18.33	84.18	36.50
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Minnesota	-	-	-	-	-	-	-	-	-	-	-	39.85	-	39.85	36.04	36.79
Missouri	-	-	-	-	-	-	-	-	-	-	-	113.64	-	113.64	23.89	50.46
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nevada	-	-	-	-	-	-	-	-	-	-	-	22.32	-	22.32	28.23	23.29
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	49.98	-	49.98	31.25	37.03
New Jersey	-	-	-	-	-	-	-	-	-	-	-	50.35	-	50.35	88.32	64.14
New Mexico	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New York	-	-	-	-	-	-	-	-	-	-	-	38.90	-	32.16	50.45	35.37
North Carolina	-	-	-	1.18	-	1.18	-	.69	-	-	-	8.25	-	8.25	15.05	11.06
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	14.54	-	14.54	42.72	33.46
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	-	-	-	62.50	27.81
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	271.74	-	271.74	-	271.74
South Carolina	-	-	-	1.79	-	1.79	-	.95	-	-	-	14.33	-	14.33	16.20	15.21
South Dakota	-	-	-	-	-	-	-	-	-	-	-	42.21	-	42.21	25.77	34.06
Texas	-	-	-	-	-	-	-	-	-	-	-	31.94	-	31.94	38.40	36.21
Vermont	-	-	-	-	-	-	-	-	-	-	-	29.71	-	29.71	25.41	28.12
Virginia	-	-	-	-	-	-	-	-	-	-	-	15.87	-	15.87	13.77	14.96
Washington	-	-	-	-	-	-	-	-	-	-	-	26.01	-	26.01	-	20.73
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	64.35	-	64.35	9.14	43.93
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Combined rate	-	-	-	.45	-	.45	-	.23	-	-	-	23.07	-	22.95	26.79	24.79

TABLE B-17. - Injury experience and worktime data by general work location at granite operations in the United States, by State, 1971 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Severity rates per million man-hours															
Alabama	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alaska	-	-	-	-	-	-	-	-	-	-	-	516	-	516	347	487
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arkansas	-	-	-	-	-	-	-	-	-	-	-	320	-	320	784	573
California	-	-	-	-	-	-	-	-	-	-	-	239	-	239	1,837	1,041
Colorado	-	-	-	-	-	-	-	-	-	-	-	970	-	970	437	679
Connecticut	-	-	-	-	-	-	-	-	-	-	-	-	-	-	786	421
Georgia	-	-	-	3,549	-	3,549	-	1,713	-	-	-	900	-	900	339	610
Idaho	-	-	-	-	-	-	-	-	-	-	-	559	-	442	-	435
Maine	-	-	-	-	-	-	-	-	-	-	-	79	-	79	53	59
Maryland	-	-	-	-	-	-	-	-	-	-	-	1,186	-	1,186	-	935
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	176	-	176	1,948	665
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Minnesota	-	-	-	-	-	-	-	-	-	-	-	1,084	-	1,084	810	863
Missouri	-	-	-	-	-	-	-	-	-	-	-	2,159	-	2,159	454	959
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nevada	-	-	-	-	-	-	-	-	-	-	-	748	-	748	1,044	797
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	570	-	570	688	651
New Jersey	-	-	-	-	-	-	-	-	-	-	-	831	-	831	1,104	930
New Mexico	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New York	-	-	-	-	-	-	-	-	-	-	-	350	-	289	8,577	1,742
North Carolina	-	-	-	7,070	-	7,070	-	4,148	-	-	-	216	-	216	673	405
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	436	-	436	2,015	1,496
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	-	-	-	312	139
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	7,065	-	7,065	-	7,065
South Carolina	-	-	-	10,745	-	10,745	-	5,703	-	-	-	931	-	931	498	728
South Dakota	-	-	-	-	-	-	-	-	-	-	-	777	-	777	945	860
Texas	-	-	-	-	-	-	-	-	-	-	-	516	-	516	8,915	6,059
Vermont	-	-	-	-	-	-	-	-	-	-	-	274	-	274	284	277
Virginia	-	-	-	-	-	-	-	-	-	-	-	476	-	476	163	340
Washington	-	-	-	-	-	-	-	-	-	-	-	104	-	104	-	83
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	1,941	-	1,941	375	1,362
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Combined rate	-	-	-	2,714	-	2,700	-	1,406	-	-	-	562	-	559	1,010	775

TABLE B-17. - Injury experience and worktime data by general work location at granitc operations in the United States, by State, 1971 - Continued

State	Active operations		Average men working daily							Average days active				
	Quarries	Mills	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines	Open quarries	Other surface mining	Total mining activities	Mills
			Underground	Surface	Total										
Alabama	1	1	-	-	-	12	-	12	4	16	-	263	-	263	263
Alaska	11	10	-	-	-	186	-	186	37	223	-	245	-	245	253
Arizona	3	2	-	-	-	5	-	5	6	11	-	40	-	40	48
Arkansas	4	4	-	-	-	140	-	140	197	337	-	277	-	277	276
California	45	18	-	-	-	152	-	152	129	281	-	209	-	209	248
Colorado	66	5	-	-	-	30	-	30	30	60	-	191	-	191	230
Connecticut	2	2	-	-	-	15	-	15	16	31	-	267	-	267	288
Georgia	63	50	-	-	-	736	-	736	772	1,508	-	246	-	246	258
Idaho	4	1	10	3	13	55	-	68	1	69	296	264	-	270	246
Maine	5	2	-	-	-	24	-	24	86	110	-	246	-	246	245
Maryland	1	1	-	-	-	19	-	19	5	24	-	266	-	266	272
Massachusetts	10	8	-	-	-	215	-	215	89	304	-	254	-	254	234
Michigan	1	1	-	-	-	8	-	8	2	10	-	176	-	176	178
Minnesota	20	5	-	-	-	134	-	134	462	596	-	213	-	213	247
Missouri	1	1	-	-	-	10	-	10	24	34	-	251	-	251	218
Montana	3	1	-	-	-	2	-	2	1	3	-	70	-	70	70
Nevada	5	5	-	-	-	81	-	81	16	97	-	246	-	246	246
New Hampshire	3	2	-	-	-	51	-	51	112	163	-	245	-	245	250
New Jersey	5	5	-	-	-	77	-	77	46	123	-	250	-	250	243
New Mexico	2	2	-	-	-	3	-	3	3	6	-	209	-	209	144
New York	7	4	7	2	9	36	-	45	9	54	225	242	-	239	250
North Carolina	93	72	-	-	-	833	-	833	606	1,439	-	234	-	234	232
Oklahoma	12	7	-	-	-	41	-	41	73	114	-	210	-	210	240
Oregon	3	2	-	-	-	3	-	3	1	4	-	119	-	119	312
Pennsylvania	3	1	-	-	-	14	-	14	10	24	-	178	-	178	200
Rhode Island	1	-	-	-	-	2	-	2	-	2	-	227	-	227	-
South Carolina	17	12	-	-	-	264	-	264	223	487	-	235	-	235	258
South Dakota	7	2	-	-	-	107	-	107	99	206	-	248	-	248	283
Texas	7	4	-	-	-	76	-	76	151	227	-	265	-	265	254
Vermont	8	5	-	-	-	417	-	417	234	651	-	245	-	245	245
Virginia	28	28	-	-	-	339	-	339	236	575	-	252	-	252	275
Washington	10	5	-	-	-	29	-	29	10	39	-	166	-	166	122
Wisconsin	19	6	-	-	-	103	-	103	56	159	-	224	-	224	244
Wyoming	4	2	-	-	-	13	-	13	23	36	-	205	-	205	246
Total or average	474	276	17	5	22	4,232	-	4,254	3,769	8,023	267	240	-	241	250

TABLE 8-17. - Injury experience and worktime data by general work location at granite operations in the United States, by State, 1971 - Continued

State	Man-days worked							Man-hours worked						
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
Alabama	-	-	-	3,156	-	3,156	1,052	4,208	-	-	-	25,248	-	25,248	8,416	33,664
Alaska	-	-	-	45,537	-	45,537	9,368	54,905	-	-	-	364,294	-	364,294	74,940	439,234
Arizona	-	-	-	200	-	200	285	485	-	-	-	1,579	-	1,579	2,280	3,859
Arkansas	-	-	-	38,729	-	38,729	54,384	93,113	-	-	-	384,559	-	384,559	461,645	846,204
California	-	-	-	31,725	-	31,725	31,966	63,691	-	-	-	255,736	-	255,736	257,989	513,725
Colorado	-	-	-	5,726	-	5,726	6,899	12,625	-	-	-	51,522	-	51,522	61,832	113,354
Connecticut	-	-	-	4,007	-	4,007	4,610	8,617	-	-	-	32,057	-	32,057	36,880	68,937
Georgia	-	-	-	181,167	-	181,167	199,235	380,402	-	-	-	1,690,493	-	1,690,493	1,811,278	3,501,771
Idaho	3,077	769	3,846	14,545	-	18,391	246	18,637	24,607	6,152	30,759	116,363	-	147,122	2,219	149,341
Maine	-	-	-	5,910	-	5,910	21,080	26,990	-	-	-	50,340	-	50,340	169,670	220,010
Maryland	-	-	-	5,058	-	5,058	1,360	6,418	-	-	-	45,521	-	45,521	12,240	57,761
Massachusetts	-	-	-	54,551	-	54,551	20,788	75,339	-	-	-	436,413	-	436,413	166,301	602,714
Michigan	-	-	-	1,407	-	1,407	356	1,763	-	-	-	12,659	-	12,659	3,204	15,863
Minnesota	-	-	-	28,517	-	28,517	114,059	142,576	-	-	-	250,919	-	250,919	1,026,529	1,277,448
Missouri	-	-	-	2,514	-	2,514	5,230	7,744	-	-	-	17,600	-	17,600	41,850	59,450
Montana	-	-	-	140	-	140	70	210	-	-	-	1,120	-	1,120	560	1,680
Nevada	-	-	-	19,914	-	19,914	3,936	23,850	-	-	-	179,229	-	179,229	35,424	214,653
New Hampshire	-	-	-	12,506	-	12,506	28,000	40,506	-	-	-	100,048	-	100,048	224,000	324,048
New Jersey	-	-	-	19,250	-	19,250	11,199	30,449	-	-	-	158,883	-	158,883	90,575	249,458
New Mexico	-	-	-	626	-	626	431	1,057	-	-	-	5,001	-	5,001	3,446	8,447
New York	1,552	470	2,022	8,717	-	10,739	2,246	12,985	12,414	3,760	16,174	77,112	-	93,286	19,820	113,106
North Carolina	-	-	-	195,258	-	195,258	140,767	336,025	-	-	-	1,697,264	-	1,697,264	1,195,865	2,893,129
Oklahoma	-	-	-	8,594	-	8,594	17,556	26,150	-	-	-	68,757	-	68,757	140,445	209,202
Oregon	-	-	-	356	-	356	312	668	-	-	-	2,845	-	2,845	2,493	5,338
Pennsylvania	-	-	-	2,495	-	2,495	2,000	4,495	-	-	-	19,960	-	19,960	16,000	35,960
Rhode Island	-	-	-	454	-	454	-	454	-	-	-	3,680	-	3,680	-	3,680
South Carolina	-	-	-	62,081	-	62,081	57,474	119,555	-	-	-	558,403	-	558,403	493,731	1,052,134
South Dakota	-	-	-	26,504	-	26,504	28,017	54,521	-	-	-	236,921	-	236,921	232,831	469,752
Texas	-	-	-	20,135	-	20,135	38,428	58,563	-	-	-	187,838	-	187,838	364,562	552,400
Vermont	-	-	-	101,971	-	101,971	57,280	159,251	-	-	-	807,932	-	807,932	472,314	1,280,246
Virginia	-	-	-	85,459	-	85,459	64,922	150,381	-	-	-	756,020	-	756,020	581,179	1,337,199
Washington	-	-	-	4,806	-	4,806	1,223	6,029	-	-	-	38,446	-	38,446	9,785	48,231
Wisconsin	-	-	-	23,085	-	23,085	13,682	36,767	-	-	-	186,480	-	186,480	109,459	295,939
Wyoming	-	-	-	2,661	-	2,661	5,655	8,316	-	-	-	21,288	-	21,288	45,238	66,526
Total	4,629	1,239	5,868	1,017,761	-	1,023,629	944,116	1,967,745	37,021	9,912	46,933	8,842,530	-	8,889,463	8,175,000	17,064,463

TABLE B-18. - Injury experience and worktime data by general work location at limestone operations in the United States, by State, 1971

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Injuries															
Alabama	-	-	-	-	-	-	-	-	2	-	2	4	8	14	11	25
Alaska	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arizona	-	-	-	-	-	-	-	-	-	-	-	1	-	1	3	4
Arkansas	-	-	-	-	-	-	-	-	4	-	4	9	-	13	10	23
California	4	-	4	1	-	5	-	5	11	2	13	9	2	24	5	29
Colorado	-	-	-	-	-	-	-	-	-	-	-	3	-	3	2	5
Connecticut	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	2
Florida	-	-	-	4	-	4	1	5	-	-	-	73	7	80	65	145
Georgia	-	-	-	1	-	1	-	1	-	-	-	8	-	8	8	16
Hawaii	-	-	-	-	-	-	-	-	-	-	-	8	-	8	1	9
Idaho	-	-	-	-	-	-	-	-	-	-	-	1	-	1	4	5
Illinois	-	-	-	2	-	2	1	3	4	6	10	71	-	81	78	159
Indiana	-	-	-	1	-	1	-	1	-	-	-	57	-	57	54	111
Iowa	-	-	-	1	-	1	1	2	2	1	3	63	-	66	23	89
Kansas	-	-	-	-	-	-	-	-	2	2	4	6	-	10	11	21
Kentucky	1	-	1	-	-	1	-	1	17	25	42	53	-	95	100	195
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	37	37	10	47
Maine	-	-	-	-	-	-	1	1	-	-	-	2	-	2	2	4
Maryland	-	-	-	-	-	-	-	-	-	1	1	6	1	8	2	10
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	2
Michigan	-	-	-	-	-	-	1	1	-	-	-	21	-	21	14	35
Minnesota	-	-	-	-	-	-	-	-	-	-	-	8	-	8	33	41
Mississippi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	1	1	1	-	2	2	4	13	4	17	41	-	58	65	123
Montana	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-	2
Nebraska	-	-	-	-	-	-	-	-	2	-	2	4	-	6	25	31
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Jersey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Mexico	-	-	-	-	-	-	-	-	-	-	-	2	-	2	4	6
New York	-	-	-	-	-	-	-	-	-	-	-	28	-	28	21	49
North Carolina	-	-	-	-	-	-	-	-	-	-	-	2	-	2	7	9
Ohio	-	-	-	1	-	1	-	1	-	-	-	39	-	39	28	67
Oklahoma	-	-	-	-	-	-	1	1	1	-	1	25	-	26	27	53
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Pennsylvania	-	-	-	1	-	1	-	1	3	-	3	58	-	61	52	113
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-	2
South Carolina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3
South Dakota	-	-	-	-	-	-	-	-	-	-	-	6	-	6	1	7
Tennessee	-	-	-	2	-	2	1	3	-	3	3	29	-	32	48	80
Texas	-	-	-	-	-	-	1	1	1	-	1	68	25	94	41	135
Utah	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
Vermont	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	2
Virginia	-	-	-	1	-	1	1	2	-	-	-	43	-	43	45	88
Washington	-	-	-	1	-	1	-	1	-	-	-	-	-	-	-	-
West Virginia	-	-	-	1	-	1	1	2	6	6	12	11	-	23	12	35
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	43	-	43	9	52
Wyoming	-	-	-	-	-	-	-	-	2	1	3	1	-	4	1	5
Total	5	1	6	18	-	24	12	36	70	51	121	811	80	1,012	829	1,841

TABLE B-18. - Injury experience and worktime data by general work location at limestone operations in the United States, by State, 1971 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Frequency rates per million man-hours															
Alabama	-	-	-	-	-	-	-	-	59.75	-	50.79	5.62	75.08	16.31	13.08	14.71
Alaska	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arizona	-	-	-	-	-	-	-	-	-	-	-	18.96	-	18.96	214.90	59.96
Arkansas	-	-	-	-	-	-	-	-	96.60	-	70.16	30.43	-	36.85	24.22	30.04
California	45.64	-	33.34	4.60	-	14.75	-	6.68	125.50	61.84	108.34	41.44	1,037.34	70.78	12.20	38.73
Colorado	-	-	-	-	-	-	-	-	-	-	-	35.32	-	35.32	43.40	38.16
Connecticut	-	-	-	-	-	-	-	-	-	-	-	67.69	-	67.69	22.44	33.71
Florida	-	-	-	1.47	-	1.36	0.35	.86	-	-	-	26.89	32.02	27.27	22.63	24.97
Georgia	-	-	-	3.28	-	3.28	-	1.84	-	-	-	26.27	-	26.27	33.43	29.42
Hawaii	-	-	-	-	-	-	-	-	-	-	-	99.25	-	99.25	60.99	92.79
Idaho	-	-	-	-	-	-	-	-	-	-	-	80.89	-	80.89	118.07	108.13
Illinois	-	-	-	.76	-	.67	.39	.54	12.92	99.70	27.04	27.03	-	27.03	30.78	28.75
Indiana	-	-	-	.49	-	.48	-	.25	-	-	-	27.82	-	27.63	27.16	27.40
Iowa	-	-	-	.43	-	.41	.72	.52	27.57	36.45	30.01	26.93	-	27.05	16.47	23.20
Kansas	-	-	-	-	-	-	-	-	13.49	43.19	20.56	4.86	-	7.00	15.30	9.78
Kentucky	1.69	-	1.25	-	-	.34	-	.23	28.77	121.13	52.68	25.06	-	32.62	66.93	44.25
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	64.01	64.01	31.99	52.77
Maine	-	-	-	-	-	-	76.19	18.62	-	-	-	49.28	-	49.28	152.38	74.48
Maryland	-	-	-	-	-	-	-	-	-	220.46	34.58	9.36	48.20	11.58	3.24	7.64
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	122.55	-	122.55	58.97	79.63
Michigan	-	-	-	-	-	-	.55	.33	-	-	-	17.75	-	17.54	7.71	11.62
Minnesota	-	-	-	-	-	-	-	-	-	-	-	22.97	-	22.97	98.31	59.95
Mississippi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	5.45	1.47	.41	-	.64	1.59	.92	26.14	21.82	24.98	16.89	-	18.66	51.63	28.17
Montana	-	-	-	-	-	-	-	-	-	-	-	27.75	-	27.75	-	24.45
Nebraska	-	-	-	-	-	-	-	-	58.19	-	47.00	9.01	-	12.33	120.17	44.64
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Jersey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Mexico	-	-	-	-	-	-	-	-	-	-	-	21.97	-	21.97	131.64	49.42
New York	-	-	-	-	-	-	-	-	-	-	-	23.40	-	23.40	23.51	23.44
North Carolina	-	-	-	-	-	-	-	-	-	-	-	8.72	-	8.72	121.61	31.37
Ohio	-	-	-	.51	-	.47	-	.26	-	-	-	19.82	-	18.23	16.32	17.38
Oklahoma	-	-	-	-	-	-	2.19	.57	72.34	-	33.39	19.83	-	20.15	59.01	30.32
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	862.07	82.99
Pennsylvania	-	-	-	.40	-	.37	-	.20	29.23	-	18.86	22.96	-	22.72	22.68	22.70
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	181.82	-	181.82	-	34.97
South Carolina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31.56	16.72
South Dakota	-	-	-	-	-	-	-	-	-	-	-	142.17	-	142.17	8.27	42.91
Tennessee	-	-	-	1.03	-	.98	.69	.86	-	71.90	31.60	14.87	-	15.64	33.22	22.92
Texas	-	-	-	-	-	-	.55	.24	137.17	-	102.88	34.41	59.90	39.12	22 72	32.09
Utah	-	-	-	-	-	-	-	-	-	-	-	9.61	-	8.90	-	6.42
Vermont	-	-	-	-	-	-	-	-	-	-	-	6.65	-	6.65	18.78	9.82
Virginia	-	-	-	.67	-	.66	.75	.70	-	-	-	28.73	-	28.53	33.64	30.93
Washington	-	-	-	28.13	-	28.13	-	14.88	-	-	-	-	-	-	-	-
West Virginia	-	-	-	1.82	-	1.20	2.20	1.55	27.46	90.77	42.16	20.07	-	27.62	26.39	27.19
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	30.11	-	30.11	16.77	26.46
Wyoming	-	-	-	-	-	-	-	-	33.60	86.81	42.23	26.52	-	36.78	33.37	36.05
Combined rate	2.00	1.24	1.82	.51	-	.60	.41	.52	28.05	63.09	36.62	23.03	59.56	25.39	28.44	26.68

TABLE B-18. - Injury experience and worktime data by general work location at limestone operations in the United States, by State, 1971 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Severity rates per million man-hours															
Alabama	-	-	-	-	-	-	-	-	1,792	-	1,524	364	2,327	661	7,326	3,959
Alaska	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arizona	-	-	-	-	-	-	-	-	-	-	-	38	-	38	358	105
Arkansas	-	-	-	-	-	-	-	-	1,087	-	789	676	-	694	1,143	936
California	273,823	-	200,013	27,627	-	88,471	-	40,063	2,019	216	1,533	4,093	55,498	3,480	637	1,924
Colorado	-	-	-	-	-	-	-	-	-	-	-	518	-	518	108	374
Connecticut	-	-	-	-	-	-	-	-	-	-	-	2,031	-	2,031	696	1,028
Florida	-	-	-	8,839	-	8,181	2,089	5,167	-	-	-	559	851	581	1,720	1,144
Georgia	-	-	-	19,705	-	19,705	-	11,033	-	-	-	598	-	598	564	583
Hawaii	-	-	-	-	-	-	-	-	-	-	-	1,005	-	1,005	183	866
Idaho	-	-	-	-	-	-	-	-	-	-	-	81	-	81	295	238
Illinois	-	-	-	4,568	-	4,004	2,367	3,254	184	1,196	349	984	-	906	1,559	1,205
Indiana	-	-	-	2,928	-	2,908	-	1,481	-	-	-	1,031	-	1,024	776	902
Iowa	-	-	-	2,565	-	2,460	4,296	3,128	5,611	4,557	5,322	3,415	-	3,493	316	2,336
Kansas	-	-	-	-	-	-	-	-	74	130	87	82	-	83	683	284
Kentucky	10,154	-	7,526	-	-	2,060	-	1,362	569	4,458	1,575	658	-	909	1,527	1,119
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	1,695	1,695	371	1,231
Maine	-	-	-	-	-	-	457,143	111,719	-	-	-	370	-	370	2,362	857
Maryland	-	-	-	-	-	-	-	-	-	1,764	277	596	337	575	324	456
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	858	-	858	3,008	2,309
Michigan	-	-	-	-	-	-	3,305	1,992	-	-	-	515	-	509	246	350
Minnesota	-	-	-	-	-	-	-	-	-	-	-	571	-	571	2,702	1,617
Mississippi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	32,729	8,816	2,472	-	3,861	9,531	5,496	1,458	764	1,271	468	-	644	1,461	879
Montana	-	-	-	-	-	-	-	-	-	-	-	430	-	430	-	379
Nebraska	-	-	-	-	-	-	-	-	58	-	47	315	-	292	15,815	4,942
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Jersey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Mexico	-	-	-	-	-	-	-	-	-	-	-	417	-	417	856	527
New York	-	-	-	-	-	-	-	-	-	-	-	1,448	-	1,448	380	991
North Carolina	-	-	-	-	-	-	-	-	-	-	-	61	-	61	4,135	878
Ohio	-	-	-	3,050	-	2,805	-	1,557	-	-	-	608	-	560	1,054	780
Oklahoma	-	-	-	-	-	-	13,114	3,433	1,447	-	668	1,585	-	1,564	11,597	4,190
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	862	83
Pennsylvania	-	-	-	2,375	-	2,235	-	1,205	360	-	233	954	-	911	1,030	966
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	364	-	364	-	70
South Carolina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31,886	16,891
South Dakota	-	-	-	-	-	-	-	-	-	-	-	4,407	-	4,407	41	1,171
Tennessee	-	-	-	6,152	-	5,866	4,153	5,157	-	815	358	1,418	-	1,369	1,192	1,296
Texas	-	-	-	-	-	-	3,325	1,426	2,195	-	1,646	1,051	872	1,022	659	866
Utah	-	-	-	-	-	-	-	-	-	-	-	183	-	169	-	122
Vermont	-	-	-	-	-	-	-	-	-	-	-	199	-	199	695	329
Virginia	-	-	-	4,008	-	3,981	4,486	4,218	-	-	-	3,093	-	3,071	3,540	3,292
Washington	-	-	-	168,810	-	168,810	-	89,255	-	-	-	-	-	-	-	-
West Virginia	-	-	-	10,947	-	7,205	13,197	9,321	101	1,119	337	6,072	-	4,112	387	2,796
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	597	-	597	332	524
Wyoming	-	-	-	-	-	-	-	-	941	694	901	504	-	763	868	786
Combined rate	12,021	7,422	10,896	3,067	-	3,613	2,470	3,130	790	1,724	1,018	1,170	1,409	1,166	1,674	1,380

TABLE B-18. - Injury experience and worktime data by general work location at limestone operations in the United States, by State, 1971 - Continued

State	Active operations		Average men working daily								Average days active				
	Quarries	Mills	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines	Open quarries	Other surface mining	Total mining activities	Mills
			Underground	Surface	Total										
Alabama	39	38	17	3	20	324	32	376	363	739	242	245	313	250	260
Alaska	1	-	-	-	-	2	-	2	-	2	-	66	-	66	-
Arizona	5	2	-	-	-	25	-	25	10	35	-	253	-	253	169
Arkansas	38	21	19	7	26	147	-	173	182	355	265	241	-	245	263
California	25	19	44	13	57	144	6	207	167	374	263	181	37	199	303
Colorado	13	8	-	-	-	63	-	63	28	91	-	167	-	167	206
Connecticut	3	3	-	-	-	7	-	7	20	27	-	264	-	264	279
Florida	94	74	-	-	-	1,085	90	1,175	1,050	2,225	-	283	304	285	305
Georgia	11	9	-	-	-	118	-	118	98	216	-	264	-	264	269
Hawaii	7	5	-	-	-	48	-	48	8	56	-	210	-	210	256
Idaho	3	2	-	-	-	17	-	17	14	31	-	94	-	94	273
Illinois	233	160	140	27	167	1,289	-	1,456	1,116	2,572	263	232	-	236	258
Indiana	112	106	7	2	9	970	-	979	930	1,909	200	243	-	243	250
Iowa	308	155	37	14	51	1,362	-	1,413	760	2,173	204	190	-	191	201
Kansas	176	81	67	22	89	586	-	675	339	1,014	249	240	-	241	246
Kentucky	118	113	280	111	391	970	-	1,361	680	2,041	241	252	-	249	253
Louisiana	9	10	-	-	-	-	170	170	102	272	-	-	340	340	323
Maine	3	2	-	-	-	18	-	18	6	24	-	282	-	282	274
Maryland	18	18	16	3	19	306	7	332	264	596	169	244	329	241	284
Massachusetts	2	2	-	-	-	4	-	4	8	12	-	255	-	255	265
Michigan	24	21	6	2	8	558	-	566	863	1,429	220	252	-	251	248
Minnesota	74	48	-	-	-	241	-	241	197	438	-	167	-	167	197
Mississippi	1	1	-	-	-	10	-	10	2	12	-	260	-	260	260
Missouri	252	184	255	87	342	1,235	-	1,577	647	2,224	247	231	-	234	232
Montana	5	3	-	-	-	30	-	30	5	35	-	300	-	300	243
Nebraska	28	25	12	3	15	182	-	197	84	281	284	268	-	270	272
Nevada	2	1	-	-	-	12	-	12	2	14	-	149	-	149	212
New Jersey	2	2	-	-	-	6	-	6	17	23	-	274	-	274	269
New Mexico	16	16	-	-	-	51	-	51	15	66	-	221	-	221	243
New York	56	56	-	-	-	655	-	655	502	1,157	-	222	-	222	212
North Carolina	10	9	-	-	-	135	-	135	34	169	-	198	-	198	199
Ohio	125	119	88	5	93	981	-	1,074	810	1,884	230	241	-	240	258
Oklahoma	43	59	6	7	13	580	-	593	198	791	256	261	-	261	270
Oregon	3	1	4	1	5	5	-	10	1	11	145	127	-	136	145
Pennsylvania	136	129	59	24	83	1,255	-	1,338	1,071	2,409	217	235	-	234	249
Rhode Island	1	1	-	-	-	5	-	5	21	26	-	275	-	275	275
South Carolina	2	2	-	-	-	36	-	36	36	72	-	258	-	258	260
South Dakota	5	5	-	-	-	22	-	22	52	74	-	224	-	224	280
Tennessee	112	107	25	17	42	932	-	974	692	1,666	247	236	-	237	234
Texas	138	126	3	1	4	885	113	1,002	752	1,754	270	243	308	251	266
Utah	8	8	3	1	4	63	-	67	27	94	260	204	-	207	198
Vermont	5	4	-	-	-	68	-	68	23	91	-	270	-	270	259
Virginia	74	71	4	2	6	768	-	774	628	1,402	219	232	-	232	250
Washington	14	8	-	-	-	26	-	26	27	53	-	171	-	171	147
West Virginia	34	27	106	31	137	269	-	406	231	637	258	242	-	247	238
Wisconsin	323	135	-	-	-	841	-	841	307	1,148	-	190	-	190	197
Wyoming	9	6	31	6	37	44	-	81	19	100	240	101	-	165	194
Total or average	2,720	2,002	1,229	389	1,618	17,380	418	19,416	13,408	32,824	244	234	317	236	251

TABLE B-18. - Injury experience and worktime data by general work location at limestone operations in the United States, by State, 1971 - Continued

State	Man-days worked								Man-hours worked							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
Alabama	4,114	726	4,840	79,247	10,020	94,107	94,342	188,449	33,473	5,907	39,380	712,229	106,558	858,167	840,789	1,698,956
Alaska	-	-	-	132	-	132	-	132	-	-	-	1,060	-	1,060	-	1,060
Arizona	-	-	-	6,319	-	6,319	1,690	8,009	-	-	-	52,752	-	52,752	13,960	66,712
Arkansas	5,025	1,875	6,900	35,493	-	42,393	47,947	90,340	41,408	15,606	57,014	295,783	-	352,797	412,829	765,626
California	10,956	4,043	14,999	26,010	224	41,233	50,556	91,789	87,648	32,344	119,992	217,175	1,928	339,095	409,725	748,820
Colorado	-	-	-	10,533	-	10,533	5,761	16,294	-	-	-	84,947	-	84,947	46,083	131,030
Connecticut	-	-	-	1,847	-	1,847	5,570	7,417	-	-	-	14,774	-	14,774	44,564	59,338
Florida	-	-	-	307,562	27,326	334,888	320,604	655,492	-	-	-	2,715,101	218,610	2,933,711	2,872,620	5,806,331
Georgia	-	-	-	31,177	-	31,177	26,407	57,584	-	-	-	304,496	-	304,496	239,328	543,824
Hawaii	-	-	-	10,075	-	10,075	2,049	12,124	-	-	-	80,603	-	80,603	16,395	96,998
Idaho	-	-	-	1,604	-	1,604	3,826	5,430	-	-	-	12,362	-	12,362	33,879	46,241
Illinois	36,770	7,076	43,846	299,257	-	343,103	287,656	630,759	309,583	60,178	369,761	2,626,961	-	2,996,722	2,534,332	5,531,054
Indiana	1,400	400	1,800	235,731	-	237,531	232,799	470,330	11,200	3,200	14,400	2,048,921	-	2,063,321	1,988,221	4,051,542
Iowa	7,631	2,785	10,416	259,431	-	269,847	152,887	422,734	72,531	27,432	99,963	2,339,530	-	2,439,493	1,396,677	3,836,170
Kansas	16,653	5,468	22,121	140,382	-	162,503	83,472	245,975	148,266	46,303	194,569	1,234,325	-	1,428,894	718,731	2,147,625
Kentucky	69,849	24,323	94,172	244,107	-	338,279	171,952	510,231	590,872	206,392	797,264	2,115,293	-	2,912,557	1,493,994	4,406,551
Louisiana	-	-	-	-	57,801	57,801	32,974	90,775	-	-	-	-	578,015	578,015	312,564	890,579
Maine	-	-	-	5,073	-	5,073	1,641	6,714	-	-	-	40,581	-	40,581	13,125	53,706
Maryland	2,709	504	3,213	74,537	2,305	80,055	75,088	155,143	24,384	4,536	28,920	641,261	20,748	690,929	617,175	1,308,104
Massachusetts	-	-	-	1,020	-	1,020	2,119	3,139	-	-	-	8,160	-	8,160	16,957	25,117
Michigan	1,320	440	1,760	140,545	-	142,305	213,749	356,054	10,560	3,520	14,080	1,183,071	-	1,197,151	1,815,276	3,012,427
Minnesota	-	-	-	40,173	-	40,173	38,899	79,072	-	-	-	348,230	-	348,230	335,666	683,896
Mississippi	-	-	-	2,600	-	2,600	520	3,120	-	-	-	23,400	-	23,400	4,680	28,080
Missouri	61,817	22,663	84,480	285,015	-	369,495	150,374	519,869	497,292	183,326	680,618	2,427,344	-	3,107,962	1,259,004	4,366,966
Montana	-	-	-	9,009	-	9,009	1,215	10,224	-	-	-	72,069	-	72,069	9,720	81,789
Nebraska	3,437	818	4,255	48,849	-	53,104	22,871	75,975	34,372	8,180	42,552	443,908	-	486,460	208,030	694,490
Nevada	-	-	-	1,793	-	1,793	423	2,216	-	-	-	14,348	-	14,348	3,384	17,732
New Jersey	-	-	-	1,645	-	1,645	4,575	6,220	-	-	-	13,974	-	13,974	40,970	54,944
New Mexico	-	-	-	11,255	-	11,255	3,645	14,900	-	-	-	91,021	-	91,021	30,385	121,406
New York	-	-	-	145,438	-	145,438	106,636	252,074	-	-	-	1,196,812	-	1,196,812	893,194	2,090,006
North Carolina	-	-	-	26,790	-	26,790	6,770	33,560	-	-	-	229,315	-	229,315	57,560	286,875
Ohio	20,134	1,294	21,428	236,849	-	258,277	209,267	467,544	161,073	10,351	171,424	1,967,405	-	2,138,829	1,715,287	3,854,116
Oklahoma	1,536	1,792	3,328	151,494	-	154,822	53,387	208,209	13,824	16,128	29,952	1,260,399	-	1,290,351	457,542	1,747,893
Oregon	580	145	725	636	-	1,361	145	1,506	4,640	1,160	5,800	5,089	-	10,889	1,160	12,049
Pennsylvania	12,082	5,960	18,042	295,066	-	313,108	267,055	580,163	102,648	56,460	159,108	2,525,934	-	2,685,042	2,292,572	4,977,614
Rhode Island	-	-	-	1,375	-	1,375	5,775	7,150	-	-	-	11,000	-	11,000	46,200	57,200
South Carolina	-	-	-	9,280	-	9,280	9,344	18,624	-	-	-	84,392	-	84,392	95,057	179,449
South Dakota	-	-	-	4,935	-	4,935	14,570	19,505	-	-	-	42,203	-	42,203	120,925	163,128
Tennessee	6,020	4,354	10,374	219,992	-	230,366	161,932	392,298	53,207	41,723	94,930	1,950,678	-	2,045,608	1,444,861	3,490,469
Texas	810	270	1,080	215,171	34,782	251,033	200,317	451,350	7,290	2,430	9,720	1,976,055	417,385	2,403,160	1,804,301	4,207,461
Utah	780	260	1,040	12,834	-	13,874	5,354	19,228	6,240	2,080	8,320	104,026	-	112,346	43,493	155,839
Vermont	-	-	-	18,336	-	18,336	5,963	24,299	-	-	-	150,417	-	150,417	53,246	203,663
Virginia	876	438	1,314	177,914	-	179,228	157,041	336,269	7,008	3,504	10,512	1,496,831	-	1,507,343	1,337,510	2,844,853
Washington	-	-	-	4,442	-	4,442	3,960	8,402	-	-	-	35,543	-	35,543	31,680	67,223
West Virginia	27,350	8,013	35,363	64,986	-	100,349	54,940	155,289	218,536	66,104	284,640	548,116	-	832,756	454,648	1,287,404
Wisconsin	-	-	-	159,415	-	159,415	60,464	219,879	-	-	-	1,428,229	-	1,428,229	536,823	1,965,052
Wyoming	7,440	1,440	8,880	4,449	-	13,329	3,679	17,008	59,520	11,520	71,040	37,704	-	108,744	29,970	138,714
Total	299,289	95,087	394,376	4,059,823	132,458	4,586,657	3,362,210	7,948,867	2,495,575	808,384	3,303,959	35,213,827	1,343,244	39,861,030	29,145,092	69,006,122

TABLE B-19. - Injury experience and worktime data by general work location at limestone (chief product, lime) operations in the United States, by State, 1971

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Injuries															
Alabama	-	-	-	-	-	-	-	-	-	-	-	4	-	4	5	9
Arizona	-	-	-	-	-	-	-	-	-	-	-	1	-	1	2	3
Arkansas	-	-	-	-	-	-	1	1	-	-	-	4	-	4	8	12
California	-	-	-	-	-	-	-	-	-	-	-	4	-	4	5	9
Colorado	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Connecticut	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Florida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3
Georgia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hawaii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3
Illinois	-	-	-	-	-	-	-	-	2	-	2	-	-	2	8	10
Indiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Iowa	-	-	-	-	-	-	1	1	-	3	3	-	-	3	-	3
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	7
Maryland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	1	-	1	2	3
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	6
Minnesota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	-	-	-	-	-	-	-	5	1	6	1	-	7	37	44
Montana	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
Nevada	-	-	-	-	-	-	-	-	-	-	-	1	-	1	2	3
New Jersey	-	-	-	-	-	-	-	-	-	-	-	5	-	5	16	21
New Mexico	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
New York	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
Ohio	-	-	-	-	-	-	1	1	1	1	2	16	-	18	54	72
Oklahoma	-	-	-	-	-	-	-	-	8	-	8	-	-	8	12	20
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pennsylvania	1	-	1	-	-	1	-	1	11	-	11	5	-	16	33	49
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tennessee	-	-	-	-	-	-	-	-	-	-	-	2	-	2	13	15
Texas	-	-	-	-	-	-	1	1	-	-	-	6	-	6	14	20
Utah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Vermont	-	-	-	1	-	1	-	1	-	-	-	-	-	-	-	-
Virginia	-	-	-	-	-	-	-	-	1	2	3	3	-	6	12	18
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
West Virginia	-	-	-	-	-	-	-	-	-	-	-	2	-	2	3	5
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	1	-	1	11	12
Total	1	-	1	1	-	2	4	6	28	7	35	59	-	94	259	353

TABLE B-19. - Injury experience and worktime data by general work location at limestone (chief product, lime) operations in the United States, by State, 1971 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Frequency rates per million man-hours															
Alabama	-	-	-	-	-	-	-	-	-	-	-	18.82	-	15.74	9.72	11.71
Arizona	-	-	-	-	-	-	-	-	-	-	-	16.54	-	16.54	13.26	14.20
Arkansas	-	-	-	-	-	-	7.22	4.97	-	-	-	63.95	-	63.95	57.74	59.67
California	-	-	-	-	-	-	-	-	-	-	-	41.73	-	35.69	12.70	17.80
Colorado	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Connecticut	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Florida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36.32	36.32
Georgia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hawaii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	189.72	180.27
Illinois	-	-	-	-	-	-	-	-	92.23	-	39.64	-	-	39.64	16.57	18.75
Indiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.06	12.06
Iowa	-	-	-	-	-	-	15.76	7.01	-	69.68	37.87	-	-	37.87	-	21.03
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27.81	27.81
Maryland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	16.64	-	16.64	5.41	6.98
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17.31	17.31
Minnesota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	-	-	-	-	-	-	-	19.43	16.07	18.78	12.86	-	17.62	24.93	23.39
Montana	-	-	-	-	-	-	-	-	-	-	-	58.41	-	58.41	-	44.93
Nevada	-	-	-	-	-	-	-	-	-	-	-	14.37	-	14.37	15.59	15.16
New Jersey	-	-	-	-	-	-	-	-	-	-	-	131.08	-	131.08	95.54	102.13
New Mexico	-	-	-	-	-	-	-	-	-	-	-	189.00	-	189.00	-	47.25
New York	-	-	-	-	-	-	-	-	-	-	-	4.22	-	4.22	-	2.42
Ohio	-	-	-	-	-	-	.31	.27	46.93	210.44	76.74	35.55	-	37.81	16.54	19.25
Oklahoma	-	-	-	-	-	-	-	-	228.00	-	184.57	-	-	184.57	113.62	134.27
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pennsylvania	3.22	-	2.70	-	-	0.99	-	.34	35.46	-	29.74	7.85	-	15.90	16.91	16.57
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tennessee	-	-	-	-	-	-	-	-	-	-	-	23.62	-	23.62	88.40	64.73
Texas	-	-	-	-	-	-	1.18	.88	-	-	-	21.02	-	21.02	16.52	17.65
Utah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.60	5.00
Vermont	-	-	-	215.52	-	215.52	-	35.92	-	-	-	-	-	-	-	-
Virginia	-	-	-	-	-	-	-	-	6.62	61.76	16.35	22.59	-	18.97	16.21	17.04
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20.74	20.74
West Virginia	-	-	-	-	-	-	-	-	-	-	-	53.97	-	53.97	14.25	20.20
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	28.86	-	28.86	40.43	39.12
Combined rate	1.14	-	.89	.36	-	.51	.31	.36	31.93	27.70	30.98	21.31	-	24.11	20.09	21.03

TABLE B-19. - Injury experience and worktime data by general work location at limestone (chief product, lime) operations in the United States, by State, 1971 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Severity rates per million man-hours															
Alabama	-	-	-	-	-	-	-	-	-	-	-	329	-	275	157	196
Arizona	-	-	-	-	-	-	-	-	-	-	-	430	-	430	331	360
Arkansas	-	-	-	-	-	-	43,304	29,835	-	-	-	911	-	911	787	825
California	-	-	-	-	-	-	-	-	-	-	-	2,525	-	2,159	325	732
Colorado	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Connecticut	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Florida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,647	1,647
Georgia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hawaii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,300	4,086
Illinois	-	-	-	-	-	-	-	-	876	-	377	-	-	377	333	338
Indiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	603	603
Iowa	-	-	-	-	-	-	94,561	42,056	-	1,556	846	-	-	846	-	470
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	187	187
Maryland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	116	-	116	663	586
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,186	1,186
Minnesota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	-	-	-	-	-	-	-	358	96	307	26	-	252	927	784
Montana	-	-	-	-	-	-	-	-	-	-	-	58	-	58	-	45
Nevada	-	-	-	-	-	-	-	-	-	-	-	446	-	446	538	505
New Jersey	-	-	-	-	-	-	-	-	-	-	-	8,861	-	8,861	1,487	2,855
New Mexico	-	-	-	-	-	-	-	-	-	-	-	37,800	-	37,800	-	9,449
New York	-	-	-	-	-	-	-	-	-	-	-	304	-	304	-	174
Ohio	-	-	-	-	-	-	1,838	1,604	375	1,684	614	1,164	-	1,134	529	606
Oklahoma	-	-	-	-	-	-	-	-	10,459	-	8,467	-	-	8,467	1,411	3,464
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pennsylvania	19,342	-	16,219	-	-	5,961	-	2,029	1,622	-	1,360	129	-	581	504	530
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tennessee	-	-	-	-	-	-	-	-	-	-	-	921	-	921	925	924
Texas	-	-	-	-	-	-	7,081	5,296	-	-	-	343	-	343	342	342
Utah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	904	595
Vermont	-	-	-	1,293,103	-	1,293,103	-	215,517	-	-	-	-	-	-	-	-
Virginia	-	-	-	-	-	-	-	-	146	618	229	1,559	-	787	384	505
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	62	62
West Virginia	-	-	-	-	-	-	-	-	-	-	-	1,214	-	1,214	1,264	1,256
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	577	-	577	408	427
Combined rate	6,841	-	5,311	2,167	-	3,078	1,862	2,144	1,153	400	984	758	-	824	562	623

TABLE 8-19. - Injury experience and worktime data by general work location at limestone (chief product, lime) operations in the United States, by State, 1971 - Continued

State	Active operations		Average men working daily							Average days active				
	Quarries	Mills	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines	Open quarries	Other surface mining	Total mining activities	Mills
			Underground	Surface	Total										
Alabama	6	5	15	3	18	98	-	116	185	301	289	271	-	274	348
Arizona	5	5	-	-	-	27	-	27	57	84	-	280	-	280	331
Arkansas	1	2	-	-	-	30	-	30	66	96	-	261	-	261	262
California	5	11	5	3	8	47	-	55	147	202	254	255	-	255	335
Colorado	2	2	-	-	-	36	-	36	18	54	-	129	-	129	199
Connecticut	1	1	-	-	-	5	-	5	35	40	-	302	-	302	285
Florida	-	2	-	-	-	-	-	-	28	28	-	-	-	-	365
Georgia	1	1	-	-	-	1	-	1	8	9	-	40	-	40	40
Hawaii	1	2	-	-	-	2	-	2	13	15	-	52	-	52	152
Illinois	2	5	11	11	22	-	-	22	176	198	287	-	-	287	343
Indiana	-	1	-	-	-	-	-	-	27	27	-	-	-	-	361
Iowa	1	2	15	15	30	-	-	30	23	53	280	-	-	280	345
Louisiana	-	3	-	-	-	-	-	-	87	87	-	-	-	-	362
Maryland	2	2	-	-	-	17	-	17	25	42	-	286	-	286	305
Massachusetts	2	2	-	-	-	22	-	22	149	171	-	312	-	312	310
Michigan	-	8	-	-	-	-	-	-	129	129	-	-	-	-	336
Minnesota	-	1	-	-	-	-	-	-	12	12	-	-	-	-	365
Missouri	4	7	90	22	112	44	-	156	543	699	357	221	-	318	342
Montana	1	1	-	-	-	10	-	10	3	13	-	214	-	214	214
Nevada	3	4	-	-	-	32	-	32	45	77	-	272	-	272	356
New Jersey	1	1	-	-	-	14	-	14	60	74	-	272	-	272	279
New Mexico	1	1	-	-	-	2	-	2	6	8	-	330	-	330	331
New York	1	2	-	-	-	113	-	113	83	196	-	262	-	262	267
Ohio	14	26	13	3	16	186	-	202	1,229	1,431	204	288	-	281	332
Oklahoma	1	2	17	4	21	-	-	21	37	58	258	-	-	258	357
Oregon	-	2	-	-	-	-	-	-	28	28	-	-	-	-	271
Pennsylvania	16	15	140	26	166	304	-	470	823	1,293	279	259	-	266	296
South Dakota	1	1	-	-	-	3	-	3	2	5	-	312	-	312	300
Tennessee	3	3	-	-	-	35	-	35	54	89	-	337	-	337	320
Texas	7	7	-	-	-	130	-	130	289	419	-	275	-	275	365
Utah	5	4	-	-	-	35	-	35	51	86	-	244	-	244	323
Vermont	1	1	-	-	-	2	-	2	10	12	-	290	-	290	290
Virginia	8	8	92	17	109	57	-	166	305	471	210	291	-	238	303
Washington	-	1	-	-	-	-	-	-	24	24	-	-	-	-	251
West Virginia	3	4	-	-	-	19	-	19	91	110	-	244	-	244	289
Wisconsin	4	6	-	-	-	15	-	15	121	136	-	276	-	276	276
Total or average	103	151	398	104	502	1,286	-	1,788	4,989	6,777	278	266	-	269	321

TABLE B-19. - Injury experience and worktime data by general work location at limestone (chief product, lime) operations in the United States, by State, 1971 - Continued

State	Man-days worked								Man-hours worked							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
Alabama	4,267	928	5,195	26,569	-	31,764	64,302	96,066	34,133	7,425	41,558	212,561	-	254,119	514,404	768,523
Arizona	-	-	-	7,558	-	7,558	18,853	26,411	-	-	-	60,468	-	60,468	150,834	211,302
Arkansas	-	-	-	7,818	-	7,818	17,318	25,136	-	-	-	62,550	-	62,550	138,554	201,104
California	1,260	768	2,028	11,982	-	14,010	49,203	63,213	10,077	6,145	16,222	95,851	-	112,073	393,629	505,702
Colorado	-	-	-	4,634	-	4,634	3,582	8,216	-	-	-	37,826	-	37,826	28,917	66,743
Connecticut	-	-	-	1,512	-	1,512	9,978	11,490	-	-	-	12,093	-	12,093	79,826	91,919
Florida	-	-	-	-	-	-	10,324	10,324	-	-	-	-	-	-	82,597	82,597
Georgia	-	-	-	40	-	40	320	360	-	-	-	360	-	360	2,880	3,240
Hawaii	-	-	-	104	-	104	1,977	2,081	-	-	-	829	-	829	15,813	16,642
Illinois	2,711	3,596	6,307	-	-	6,307	60,355	66,662	21,685	28,772	50,457	-	-	50,457	482,853	533,310
Indiana	-	-	-	-	-	-	9,751	9,751	-	-	-	-	-	-	82,889	82,889
Iowa	4,035	4,350	8,385	-	-	8,385	7,935	16,320	36,164	43,053	79,217	-	-	79,217	63,451	142,668
Louisiana	-	-	-	-	-	-	31,467	31,467	-	-	-	-	-	-	251,739	251,739
Maryland	-	-	-	4,863	-	4,863	7,637	12,500	-	-	-	40,819	-	40,819	65,850	106,669
Massachusetts	-	-	-	6,872	-	6,872	46,207	53,079	-	-	-	60,100	-	60,100	369,658	429,758
Michigan	-	-	-	-	-	-	43,332	43,332	-	-	-	-	-	-	346,653	346,653
Minnesota	-	-	-	-	-	-	4,385	4,385	-	-	-	-	-	-	35,077	35,077
Missouri	32,162	7,779	39,941	9,723	-	49,664	185,526	235,190	257,296	62,232	319,528	77,785	-	397,313	1,484,218	1,881,531
Montana	-	-	-	2,140	-	2,140	642	2,782	-	-	-	17,120	-	17,120	5,136	22,256
Nevada	-	-	-	8,696	-	8,696	16,032	24,728	-	-	-	69,572	-	69,572	128,262	197,834
New Jersey	-	-	-	3,815	-	3,815	16,748	20,563	-	-	-	38,145	-	38,145	167,477	205,622
New Mexico	-	-	-	661	-	661	1,984	2,645	-	-	-	5,291	-	5,291	15,875	21,166
New York	-	-	-	29,606	-	29,606	22,133	51,739	-	-	-	236,848	-	236,848	177,064	413,912
Ohio	2,664	594	3,258	53,529	-	56,787	407,978	464,765	21,310	4,752	26,062	450,065	-	476,127	3,265,021	3,741,148
Oklahoma	4,386	1,032	5,418	-	-	5,418	13,202	18,620	35,088	8,256	43,344	-	-	43,344	105,614	148,958
Oregon	-	-	-	-	-	-	7,582	7,582	-	-	-	-	-	-	60,659	60,659
Pennsylvania	38,775	7,466	46,241	78,773	-	125,014	243,416	368,430	310,202	59,732	369,934	636,665	-	1,006,599	1,950,962	2,957,561
South Dakota	-	-	-	936	-	936	600	1,536	-	-	-	6,552	-	6,552	4,200	10,752
Tennessee	-	-	-	11,808	-	11,808	17,256	29,064	-	-	-	84,667	-	84,667	147,054	231,721
Texas	-	-	-	35,687	-	35,687	105,919	141,606	-	-	-	285,500	-	285,500	847,355	1,132,855
Utah	-	-	-	8,547	-	8,547	16,455	25,002	-	-	-	68,387	-	68,387	131,641	200,028
Vermont	-	-	-	580	-	580	2,900	3,480	-	-	-	4,640	-	4,640	23,200	27,840
Virginia	18,887	4,048	22,935	16,601	-	39,536	92,523	132,059	151,098	32,383	183,481	132,815	-	316,296	740,195	1,056,491
Washington	-	-	-	-	-	-	6,028	6,028	-	-	-	-	-	-	48,227	48,227
West Virginia	-	-	-	4,632	-	4,632	26,308	30,940	-	-	-	37,056	-	37,056	210,469	247,525
Wisconsin	-	-	-	4,137	-	4,137	33,412	37,549	-	-	-	34,653	-	34,653	272,064	306,717
Total	109,147	30,561	139,708	341,823	-	481,531	1,603,570	2,085,101	877,053	252,750	1,129,803	2,769,218	-	3,899,021	12,890,317	16,789,338

TABLE B-20. - Injury experience and worktime data by general work location at marble operations in the United States, by State, 1971

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Injuries															
Alabama	-	-	-	-	-	-	-	-	-	-	-	3	-	3	3	6
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4
Arkansas	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
California	-	-	-	-	-	-	-	-	-	-	-	1	-	1	3	4
Colorado	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Georgia	-	-	-	-	-	-	-	-	7	1	8	7	-	15	30	45
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Misaouri	-	-	-	-	-	-	-	-	5	-	5	2	-	7	17	24
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New York	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Carolina	-	-	-	1	-	1	-	1	-	-	-	1	-	1	4	5
Tennessee	-	-	-	-	-	-	-	-	-	-	-	2	-	2	10	12
Texas	-	-	-	-	-	-	-	-	1	-	1	2	-	3	4	7
Vermont	-	-	-	-	-	-	-	-	9	-	9	-	-	9	3	12
Virginia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Washington	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	2
Wyoming	-	-	-	-	-	-	-	-	-	-	-	4	-	4	1	5
Total	-	-	-	1	-	1	-	1	22	1	23	24	-	47	81	128
	Frequency rates per million man-hours															
Alabama	-	-	-	-	-	-	-	-	-	-	-	12.95	-	12.95	5.26	7.49
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	171.00	120.83
Arkansas	-	-	-	-	-	-	-	-	-	-	-	82.03	-	82.03	-	37.86
California	-	-	-	-	-	-	-	-	-	-	-	92.92	-	92.92	125.79	115.57
Colorado	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Georgia	-	-	-	-	-	-	-	-	58.03	36.26	53.98	30.88	-	40.01	28.67	31.66
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Misaouri	-	-	-	-	-	-	-	-	93.57	-	74.40	57.49	-	68.63	38.95	44.57
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New York	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Carolina	-	-	-	28.64	-	28.64	-	10.67	-	-	-	28.64	-	28.64	68.03	53.35
Tennessee	-	-	-	-	-	-	-	-	-	-	-	16.45	-	16.45	52.56	38.48
Texas	-	-	-	-	-	-	-	-	106.84	-	106.84	46.11	-	56.89	43.39	48.30
Vermont	-	-	-	-	-	-	-	-	55.07	-	44.09	-	-	44.09	7.04	19.04
Virginia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.40	47.35
Washington	-	-	-	-	-	-	-	-	-	-	-	92.96	-	92.96	110.34	100.91
Wyoming	-	-	-	-	-	-	-	-	-	-	-	213.31	-	213.31	40.00	114.28
Combined rate	-	-	-	1.25	-	.80	-	.24	60.69	11.67	51.32	29.92	-	37.59	27.36	30.40

TABLE B-20. - Injury experience and worktime data by general work location at marble operations in the United States, by State, 1971 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Severity rates per million man-hours															
Alabama	-	-	-	-	-	-	-	-	-	-	-	363	-	363	202	248
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7,139	5,045
Arkansas	-	-	-	-	-	-	-	-	-	-	-	2,871	-	2,871	-	1,325
California	-	-	-	-	-	-	-	-	-	-	-	279	-	279	335	318
Colorado	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Georgia	-	-	-	-	-	-	-	-	539	290	493	926	-	755	746	749
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	-	-	-	-	-	-	-	2,115	-	1,681	1,667	-	1,677	463	693
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New York	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Carolina	-	-	-	171,821	-	171,821	-	64,020	-	-	-	86	-	86	952	630
Tennessee	-	-	-	-	-	-	-	-	-	-	-	477	-	477	1,193	914
Texas	-	-	-	-	-	-	-	-	855	-	855	761	-	778	1,746	1,394
Vermont	-	-	-	-	-	-	-	-	875	-	701	-	-	701	131	316
Virginia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	670	426
Washington	-	-	-	-	-	-	-	-	-	-	-	2,603	-	2,603	662	1,715
Wyoming	-	-	-	-	-	-	-	-	-	-	-	2,080	-	2,080	40	914
Combined rate	-	-	-	7,481	-	4,799	-	1,425	908	93	752	687	-	710	604	636

State	Active operations		Average men working daily							Average days active				
	Quarries	Mills	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines	Open quarries	Other surface mining	Total mining activities	Mills
			Underground	Surface	Total										
Alabama	4	3	-	-	-	116	-	116	285	401	-	250	-	250	250
Arizona	3	2	-	-	-	7	-	7	12	19	-	173	-	173	244
Arkansas	1	2	-	-	-	6	-	6	7	13	-	254	-	254	254
California	10	1	-	-	-	8	-	8	10	18	-	162	-	162	265
Colorado	1	-	-	-	-	3	-	3	-	3	-	85	-	85	-
Georgia	11	16	48	11	59	133	-	192	488	680	314	213	-	244	268
Idaho	1	-	-	-	-	1	-	1	-	1	-	226	-	226	-
Maryland	1	1	2	1	3	-	-	3	5	8	200	-	-	200	250
Missouri	8	4	27	7	34	19	-	53	216	269	249	229	-	241	253
Montana	3	2	-	-	-	8	-	8	8	16	-	163	-	163	214
Nevada	1	-	-	-	-	1	-	1	-	1	-	260	-	260	-
New York	3	2	6	1	7	11	-	18	4	22	259	260	-	260	214
North Carolina	3	3	-	-	-	17	-	17	30	47	-	257	-	257	245
Tennessee	6	3	-	-	-	67	-	67	98	165	-	239	-	239	248
Texas	39	4	4	-	4	22	-	26	46	72	260	236	-	240	250
Vermont	3	2	88	22	110	-	-	110	216	326	232	-	-	232	247
Virginia	1	1	-	-	-	4	-	4	7	11	-	240	-	240	240
Washington	1	1	-	-	-	7	-	7	6	13	-	192	-	192	189
Wyoming	1	1	-	-	-	6	-	6	8	14	-	292	-	292	292
Total or average	101	48	175	42	217	436	-	653	1,446	2,099	258	230	-	239	255

TABLE B-20. - Injury experience and worktime data by general work location at marble operations in the United States, by State, 1971 - Continued

State	Man-days worked								Man-hours worked							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
Alabama	-	-	-	28,948	-	28,948	71,252	100,200	-	-	-	231,588	-	231,588	570,014	801,602
Arizona	-	-	-	1,214	-	1,214	2,924	4,138	-	-	-	9,712	-	9,712	23,392	33,104
Arkansas	-	-	-	1,524	-	1,524	1,778	3,302	-	-	-	12,190	-	12,190	14,224	26,414
California	-	-	-	1,293	-	1,293	2,650	3,943	-	-	-	10,762	-	10,762	23,850	34,612
Colorado	-	-	-	255	-	255	-	255	-	-	-	2,040	-	2,040	-	2,040
Georgia	15,077	3,447	18,524	28,338	-	46,862	130,812	177,674	120,618	27,577	148,195	226,705	-	374,900	1,046,494	1,421,394
Idaho	-	-	-	226	-	226	-	226	-	-	-	1,808	-	1,808	-	1,808
Maryland	400	200	600	-	-	600	1,250	1,850	3,200	1,600	4,800	-	-	4,800	10,000	14,800
Missouri	6,729	1,721	8,450	4,349	-	12,799	54,559	67,358	53,436	13,768	67,204	34,790	-	101,994	436,473	538,467
Montana	-	-	-	1,303	-	1,303	1,711	3,014	-	-	-	10,423	-	10,423	13,688	24,111
Nevada	-	-	-	260	-	260	-	260	-	-	-	2,080	-	2,080	-	2,080
New York	1,554	256	1,810	2,865	-	4,675	856	5,531	12,432	2,048	14,480	22,918	-	37,398	6,848	44,246
North Carolina	-	-	-	4,365	-	4,365	7,350	11,715	-	-	-	34,920	-	34,920	58,800	93,720
Tennessee	-	-	-	16,008	-	16,008	24,293	40,301	-	-	-	121,572	-	121,572	190,249	311,821
Texas	1,040	-	1,040	5,192	-	6,232	11,520	17,752	9,360	-	9,360	43,372	-	52,732	92,194	144,926
Vermont	20,430	5,084	25,514	-	-	25,514	53,286	78,800	163,440	40,672	204,112	-	-	204,112	426,288	630,400
Virginia	-	-	-	960	-	960	1,680	2,640	-	-	-	7,680	-	7,680	13,440	21,120
Washington	-	-	-	1,347	-	1,347	1,133	2,480	-	-	-	10,757	-	10,757	9,063	19,820
Wyoming	-	-	-	1,753	-	1,753	2,337	4,090	-	-	-	18,752	-	18,752	25,002	43,754
Total	45,230	10,708	55,938	100,200	-	156,138	369,391	525,529	362,486	85,665	448,151	802,069	-	1,250,220	2,960,019	4,210,239

TABLE B-21. - Injury experience and worktime data by general work location at sandstone operations in the United States, by State, 1971

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Injuries															
Alabama	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arkansas	-	-	-	-	-	-	-	-	-	-	-	5	-	5	10	15
California	-	-	-	-	-	-	-	-	-	-	-	12	-	12	6	18
Colorado	-	-	-	-	-	-	-	-	-	-	-	2	-	2	3	5
Connecticut	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Georgia	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Illinois	-	-	-	-	-	-	-	-	-	-	-	3	-	3	22	25
Indiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5
Iowa	-	-	-	-	-	-	-	-	1	-	1	-	-	1	-	1
Kansas	-	-	-	-	-	-	-	-	-	-	-	3	-	3	3	6
Kentucky	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	2	-	2	1	3
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-	2
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3
Minnesota	-	-	-	-	-	-	-	-	-	-	-	3	-	3	7	10
Missouri	-	-	-	-	-	-	-	-	-	-	-	2	-	2	1	3
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Jersey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Mexico	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
New York	-	-	-	-	-	-	-	-	-	-	-	1	-	1	9	10
North Carolina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
Ohio	-	-	-	-	-	-	-	-	-	-	-	22	-	22	14	36
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	1	-	1	5	6
Oregon	-	-	-	-	-	-	-	-	-	-	-	1	-	1	2	3
Pennsylvania	-	-	-	-	-	-	-	-	6	-	6	15	-	21	10	31
South Dakota	-	-	-	-	-	-	-	-	-	-	-	3	-	3	2	5
Tennessee	-	-	-	-	-	-	-	-	-	-	-	5	-	5	4	9
Texas	-	-	-	-	-	-	-	-	-	-	-	2	-	2	4	6
Utah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Virginia	-	-	-	-	-	-	-	-	-	-	-	5	-	5	6	11
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
West Virginia	-	-	-	-	-	-	-	-	-	-	-	5	-	5	10	15
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	3	-	3	11	14
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	7	-	7	100	-	107	141	248

TABLE B-21. - Injury experience and worktime data by general work location at sandstone operations in the United States, by State, 1971 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Frequency rates per million man-hours															
Alabama	-	-	-	-	-	-	-	-	-	-	-	48.49	-	48.49	-	43.68
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arkansas	-	-	-	-	-	-	-	-	-	-	-	18.09	-	17.22	18.64	18.14
California	-	-	-	-	-	-	-	-	-	-	-	53.97	-	53.97	31.18	43.40
Colorado	-	-	-	-	-	-	-	-	-	-	-	16.86	-	16.85	53.26	28.56
Connecticut	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Georgia	-	-	-	-	-	-	-	-	-	-	-	9.01	-	9.01	-	7.16
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	161.94	40.49
Illinois	-	-	-	-	-	-	-	-	-	-	-	19.55	-	19.49	29.14	27.50
Indiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	177.01	141.35
Iowa	-	-	-	-	-	-	-	-	24.87	-	21.94	-	-	21.94	-	19.63
Kansas	-	-	-	-	-	-	-	-	-	-	-	36.43	-	36.43	33.42	34.86
Kentucky	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	31.29	-	31.29	46.80	35.17
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	96.90	-	96.90	-	19.01
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22.74	16.75
Minnesota	-	-	-	-	-	-	-	-	-	-	-	58.01	-	58.01	92.48	78.49
Missouri	-	-	-	-	-	-	-	-	-	-	-	19.56	-	15.61	9.38	12.78
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Jersey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Mexico	-	-	-	-	-	-	-	-	-	-	-	30.06	-	30.06	-	24.79
New York	-	-	-	-	-	-	-	-	-	-	-	12.77	-	12.77	77.99	51.63
North Carolina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48.44	25.87
Ohio	-	-	-	-	-	-	-	-	-	-	-	51.74	-	51.74	18.47	30.42
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	14.94	-	14.94	110.52	53.50
Oregon	-	-	-	-	-	-	-	-	-	-	-	47.49	-	47.49	232.34	101.14
Pennsylvania	-	-	-	-	-	-	-	-	99.68	-	66.45	22.34	-	27.57	20.45	24.79
South Dakota	-	-	-	-	-	-	-	-	-	-	-	19.53	-	19.53	28.24	22.28
Tennessee	-	-	-	-	-	-	-	-	-	-	-	76.55	-	76.55	30.75	46.06
Texas	-	-	-	-	-	-	-	-	-	-	-	13.09	-	13.09	17.24	15.59
Utah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Virginia	-	-	-	-	-	-	-	-	-	-	-	44.39	-	44.39	36.85	39.93
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
West Virginia	-	-	-	-	-	-	-	-	-	-	-	17.52	-	17.52	28.59	23.62
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	54.09	-	50.51	76.75	69.06
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Combined rate	-	-	-	-	-	-	-	-	51.05	-	38.72	27.47	-	28.00	29.13	28.63

TABLE B-21. - Injury experience and worktime data by general work location at sandstone operations in the United States, by State, 1971 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Severity rates per million man-hours															
Alabama	-	-	-	-	-	-	-	-	-	-	-	242	-	242	-	218
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arkansas	-	-	-	-	-	-	-	-	-	-	-	264	-	251	697	541
California	-	-	-	-	-	-	-	-	-	-	-	2,667	-	2,667	2,682	2,674
Colorado	-	-	-	-	-	-	-	-	-	-	-	725	-	724	444	634
Connecticut	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Georgia	-	-	-	-	-	-	-	-	-	-	-	279	-	279	-	222
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	648	162
Illinois	-	-	-	-	-	-	-	-	-	-	-	469	-	468	474	473
Indiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,531	3,618
Iowa	-	-	-	-	-	-	-	-	1,492	-	1,317	-	-	1,317	-	1,178
Kansas	-	-	-	-	-	-	-	-	-	-	-	886	-	886	1,894	1,412
Kentucky	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	1,079	-	1,079	2,106	1,337
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	1,260	-	1,260	-	247
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	265	195
Minnesota	-	-	-	-	-	-	-	-	-	-	-	213	-	213	2,365	1,491
Missouri	-	-	-	-	-	-	-	-	-	-	-	333	-	265	300	281
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Jersey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Mexico	-	-	-	-	-	-	-	-	-	-	-	782	-	782	-	644
New York	-	-	-	-	-	-	-	-	-	-	-	383	-	383	1,205	873
North Carolina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	194	103
Ohio	-	-	-	-	-	-	-	-	-	-	-	1,841	-	1,841	354	888
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	418	-	418	2,321	1,186
Oregon	-	-	-	-	-	-	-	-	-	-	-	665	-	665	2,207	1,112
Pennsylvania	-	-	-	-	-	-	-	-	1,661	-	1,108	1,013	-	1,024	523	828
South Dakota	-	-	-	-	-	-	-	-	-	-	-	755	-	755	847	784
Tennessee	-	-	-	-	-	-	-	-	-	-	-	781	-	781	515	604
Texas	-	-	-	-	-	-	-	-	-	-	-	137	-	137	362	273
Utah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Virginia	-	-	-	-	-	-	-	-	-	-	-	1,500	-	1,500	534	929
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
West Virginia	-	-	-	-	-	-	-	-	-	-	-	946	-	946	1,109	1,036
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	1,028	-	960	1,849	1,588
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Combined rate	-	-	-	-	-	-	-	-	1,167	-	885	912	-	910	746	819

TABLE B-21. - Injury experience and worktime data by general work location at sandstone operations in the United States, by State, 1971 - Continued

State	Active operations		Average men working daily							Average days active				
	Quarries	Mills	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines	Open quarries	Other surface mining	Total mining activities	Mills
			Underground	Surface	Total										
Alabama	5	1	-	-	-	14	-	14	1	15	-	194	-	194	253
Arizona	50	17	-	-	-	33	-	33	15	48	-	222	-	222	244
Arkansas	44	18	5	1	6	151	-	157	236	393	260	221	-	223	283
California	28	14	-	-	-	136	-	136	98	234	-	206	-	206	248
Colorado	39	6	2	-	2	94	-	96	31	127	7	157	-	154	226
Connecticut	5	1	-	-	-	6	-	6	15	21	-	174	-	174	247
Georgia	5	3	-	-	-	51	-	51	13	64	-	243	-	243	248
Idaho	1	1	-	-	-	15	-	15	5	20	-	130	-	130	130
Illinois	8	9	1	-	1	64	-	65	344	409	120	275	-	273	275
Indiana	7	3	-	-	-	9	-	9	17	26	-	100	-	100	208
Iowa	1	1	15	2	17	-	-	17	2	19	335	-	-	335	335
Kansas	4	6	-	-	-	38	-	38	39	77	-	256	-	256	273
Kentucky	1	1	-	-	-	3	-	3	1	4	-	260	-	260	260
Maryland	9	8	-	-	-	37	-	37	11	48	-	216	-	216	243
Massachusetts	3	3	-	-	-	16	-	16	66	82	-	161	-	161	160
Michigan	5	1	-	-	-	23	-	23	56	79	-	256	-	256	295
Minnesota	3	3	-	-	-	29	-	29	38	67	-	215	-	215	247
Missouri	8	10	11	2	13	54	-	67	48	115	249	237	-	239	278
Montana	4	3	-	-	-	17	-	17	13	30	-	232	-	232	321
Nevada	4	3	-	-	-	19	-	19	17	36	-	276	-	276	286
New Hampshire	1	1	-	-	-	2	-	2	4	6	-	300	-	300	300
New Jersey	1	-	-	-	-	1	-	1	-	1	-	8	-	8	-
New Mexico	14	13	-	-	-	25	-	25	5	30	-	166	-	166	177
New York	12	11	-	-	-	47	-	47	65	112	-	208	-	208	223
North Carolina	8	5	-	-	-	18	-	18	17	35	-	249	-	249	304
Ohio	54	25	-	-	-	243	-	243	378	621	-	218	-	218	251
Oklahoma	8	8	-	-	-	32	-	32	20	52	-	249	-	249	250
Oregon	6	5	-	-	-	13	-	13	5	18	-	200	-	200	215
Pennsylvania	62	41	22	11	33	356	-	389	250	639	304	227	-	233	239
South Dakota	19	13	-	-	-	78	-	78	33	111	-	262	-	262	240
Tennessee	7	7	-	-	-	39	-	39	62	101	-	205	-	205	258
Texas	32	20	-	-	-	60	-	60	93	153	-	271	-	271	262
Utah	12	2	-	-	-	27	-	27	4	31	-	77	-	77	254
Virginia	17	10	-	-	-	64	-	64	72	136	-	214	-	214	281
Washington	8	3	2	-	2	17	-	19	12	31	30	122	-	113	148
West Virginia	23	8	-	-	-	145	-	145	169	314	-	241	-	241	258
Wisconsin	15	8	1	1	2	42	-	44	70	114	246	164	-	168	256
Wyoming	5	-	-	-	-	3	-	3	-	3	-	36	-	36	-
Total or average	538	292	59	17	76	2,021	-	2,097	2,325	4,422	279	219	-	221	256

TABLE B-21. - Injury experience and worktime data by general work location at sandstone operations in the United States, by State, 1971 - Continued

State	Man-days worked								Man-hours worked							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
Alabama	-	-	-	2,715	-	2,715	253	2,968	-	-	-	20,624	-	20,624	2,269	22,893
Arizona	-	-	-	7,314	-	7,314	3,654	10,968	-	-	-	59,518	-	59,518	29,231	88,749
Arkansas	1,300	260	1,560	33,412	-	34,972	66,697	101,669	11,700	2,340	14,040	276,361	-	290,401	536,458	826,859
California	-	-	-	28,048	-	28,048	24,263	52,311	-	-	-	222,337	-	222,337	192,422	414,759
Colorado	14	-	14	14,798	-	14,812	7,008	21,820	112	-	112	118,611	-	118,723	56,326	175,049
Connecticut	-	-	-	1,046	-	1,046	3,705	4,751	-	-	-	8,365	-	8,365	29,640	38,005
Georgia	-	-	-	12,410	-	12,410	3,223	15,633	-	-	-	110,934	-	110,934	28,766	139,700
Idaho	-	-	-	1,950	-	1,950	650	2,600	-	-	-	18,525	-	18,525	6,175	24,700
Illinois	120	-	120	17,595	-	17,715	94,542	112,257	480	-	480	153,433	-	153,913	755,020	908,933
Indiana	-	-	-	900	-	900	3,531	4,431	-	-	-	7,127	-	7,127	28,247	35,374
Iowa	5,026	670	5,696	-	-	5,696	670	6,366	40,210	5,361	45,571	-	-	45,571	5,361	50,932
Kansas	-	-	-	9,741	-	9,741	10,637	20,378	-	-	-	82,360	-	82,360	89,780	172,140
Kentucky	-	-	-	780	-	780	260	1,040	-	-	-	6,240	-	6,240	2,080	8,320
Maryland	-	-	-	7,991	-	7,991	2,671	10,662	-	-	-	63,927	-	63,927	21,368	85,295
Massachusetts	-	-	-	2,580	-	2,580	10,570	13,150	-	-	-	20,640	-	20,640	84,560	105,200
Michigan	-	-	-	5,898	-	5,898	16,494	22,392	-	-	-	47,180	-	47,180	131,954	179,134
Minnesota	-	-	-	6,222	-	6,222	9,396	15,618	-	-	-	51,712	-	51,712	75,696	127,408
Missouri	2,748	488	3,236	12,779	-	16,015	13,321	29,336	21,983	3,905	25,888	102,226	-	128,114	106,566	234,680
Montana	-	-	-	3,952	-	3,952	4,178	8,130	-	-	-	31,619	-	31,619	33,428	65,047
Nevada	-	-	-	5,253	-	5,253	4,857	10,110	-	-	-	42,025	-	42,025	38,856	80,881
New Hampshire	-	-	-	600	-	600	1,200	1,800	-	-	-	5,400	-	5,400	10,800	16,200
New Jersey	-	-	-	8	-	8	-	8	-	-	-	63	-	63	-	63
New Mexico	-	-	-	4,158	-	4,158	885	5,043	-	-	-	33,266	-	33,266	7,080	40,346
New York	-	-	-	9,785	-	9,785	14,490	24,275	-	-	-	78,281	-	78,281	115,399	193,680
North Carolina	-	-	-	4,475	-	4,475	5,160	9,635	-	-	-	36,009	-	36,009	41,287	77,296
Ohio	-	-	-	52,998	-	52,998	94,708	147,706	-	-	-	425,228	-	425,228	758,092	1,183,320
Oklahoma	-	-	-	7,977	-	7,977	5,010	12,987	-	-	-	66,913	-	66,913	45,240	112,153
Oregon	-	-	-	2,603	-	2,603	1,076	3,679	-	-	-	21,055	-	21,055	8,608	29,663
Pennsylvania	6,688	3,344	10,032	80,725	-	90,757	59,745	150,502	60,192	30,096	90,288	671,413	-	761,701	489,029	1,250,730
South Dakota	-	-	-	20,410	-	20,410	7,910	28,320	-	-	-	153,580	-	153,580	70,828	224,408
Tennessee	-	-	-	7,998	-	7,998	16,017	24,015	-	-	-	65,321	-	65,321	130,065	195,386
Texas	-	-	-	16,268	-	16,268	24,366	40,634	-	-	-	152,747	-	152,747	232,038	384,785
Utah	-	-	-	2,087	-	2,087	1,015	3,102	-	-	-	16,230	-	16,230	7,320	23,550
Virginia	-	-	-	13,680	-	13,680	20,259	33,939	-	-	-	112,635	-	112,635	162,840	275,475
Washington	59	-	59	2,081	-	2,140	1,776	3,916	464	-	464	16,651	-	17,115	14,311	31,426
West Virginia	-	-	-	34,910	-	34,910	43,588	78,498	-	-	-	285,377	-	285,377	349,812	635,189
Wisconsin	246	246	492	6,901	-	7,393	17,916	25,309	1,968	1,968	3,936	55,462	-	59,398	143,328	202,726
Wyoming	-	-	-	107	-	107	-	107	-	-	-	749	-	749	-	749
Total	16,201	5,008	21,209	443,155	-	464,364	595,701	1,060,065	137,109	43,670	180,779	3,640,144	-	3,820,923	4,840,280	8,661,203

TABLE B-22. - Injury experience and worktime data by general work location at slate operations in the United States, by State, 1971

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Injuries															
Arkansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
California	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-	2
Georgia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
Maine	-	-	-	-	-	-	-	-	2	1	3	-	-	3	1	4
New York	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Carolina	-	-	-	-	-	-	-	-	-	-	-	4	-	4	-	4
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	14	-	14	8	22
Vermont	-	-	-	-	-	-	-	-	-	-	-	9	-	9	1	10
Virginia	-	-	-	-	-	-	-	-	-	-	-	10	-	10	8	18
Total	-	-	-	-	-	-	-	-	2	1	3	39	-	42	21	63
	Frequency rates per million man-hours															
Arkansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28.89	25.11
California	-	-	-	-	-	-	-	-	-	-	-	188.96	-	188.96	-	94.59
Georgia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.12	8.92
Maine	-	-	-	-	-	-	-	-	128.73	124.01	127.12	-	-	127.12	66.31	103.41
New York	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Carolina	-	-	-	-	-	-	-	-	-	-	-	62.03	-	62.03	-	38.40
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	52.57	-	52.57	17.67	30.59
Vermont	-	-	-	-	-	-	-	-	-	-	-	45.78	-	45.78	6.20	27.94
Virginia	-	-	-	-	-	-	-	-	-	-	-	70.74	-	70.74	18.91	31.90
Combined rate	-	-	-	-	-	-	-	-	78.08	99.21	84.04	53.07	-	54.51	15.47	29.60
	Severity rates per million man-hours															
Arkansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,156	1,004
California	-	-	-	-	-	-	-	-	-	-	-	4,441	-	4,441	-	2,223
Georgia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	207	183
Maine	-	-	-	-	-	-	-	-	965	5,456	2,500	-	-	2,500	796	1,836
New York	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Carolina	-	-	-	-	-	-	-	-	-	-	-	822	-	822	-	509
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	6,567	-	6,567	1,107	3,129
Vermont	-	-	-	-	-	-	-	-	-	-	-	6,668	-	6,668	124	3,719
Virginia	-	-	-	-	-	-	-	-	-	-	-	1,380	-	1,380	1,064	1,143
Combined rate	-	-	-	-	-	-	-	-	586	4,365	1,653	4,565	-	4,431	784	2,104

TABLE B-22. - Injury experience and worktime data by general work location at slate operations in the United States, by State, 1971 - Continued

State	Active operations		Average men working daily								Average days active				
	Quarries	Mills	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines	Open quarries	Other surface mining	Total mining activities	Mills
			Underground	Surface	Total										
Arkansas	2	1	-	-	-	3	-	3	15	18	-	217	-	217	288
California	3	1	-	-	-	9	-	9	5	14	-	167	-	167	264
Georgia	3	2	5	1	6	7	-	13	95	108	252	259	-	256	260
Maine	1	1	8	4	12	-	-	12	8	20	246	-	-	246	236
New York	8	5	-	-	-	18	-	18	14	32	-	240	-	240	194
North Carolina	11	2	-	-	-	37	-	37	20	57	-	219	-	219	248
Pennsylvania	9	11	-	-	-	136	-	136	228	364	-	237	-	237	236
Vermont	22	19	-	-	-	97	-	97	85	182	-	240	-	240	234
Virginia	5	6	-	-	-	69	-	69	182	251	-	264	-	264	290
Total or average	64	48	13	5	18	376	-	394	652	1,046	248	240	-	240	255

State	Man-days worked							Man-hours worked						
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
Arkansas	-	-	-	652	-	652	4,326	4,978	-	-	-	5,216	-	5,216	34,610	39,826
California	-	-	-	1,503	-	1,503	1,320	2,823	-	-	-	10,584	-	10,584	10,560	21,144
Georgia	1,260	252	1,512	1,812	-	3,324	24,700	28,024	10,080	2,016	12,096	14,496	-	26,592	197,600	224,192
Maine	1,942	1,008	2,950	-	-	2,950	1,885	4,835	15,536	8,064	23,600	-	-	23,600	15,080	38,680
New York	-	-	-	4,323	-	4,323	2,721	7,044	-	-	-	35,807	-	35,807	23,054	58,861
North Carolina	-	-	-	8,112	-	8,112	4,960	13,072	-	-	-	64,480	-	64,480	39,680	104,160
Pennsylvania	-	-	-	32,173	-	32,173	53,875	86,048	-	-	-	266,324	-	266,324	452,767	719,091
Vermont	-	-	-	23,314	-	23,314	19,915	43,229	-	-	-	196,604	-	196,604	161,274	357,878
Virginia	-	-	-	18,218	-	18,218	52,776	70,994	-	-	-	141,354	-	141,354	422,994	564,348
Total	3,202	1,260	4,462	90,107	-	94,569	166,478	261,047	25,616	10,080	35,696	734,865	-	770,561	1,357,619	2,128,180

TABLE B-23. - Injury experience and worktime data by general work location at traprock operations in the United States, by State, 1971

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Injuries															
Alaska	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	2
Arizona	-	-	-	-	-	-	-	-	-	-	-	2	-	2	1	3
California	-	-	-	-	-	-	-	-	-	-	-	12	-	12	5	17
Colorado	-	-	-	-	-	-	-	-	-	-	-	3	-	3	1	4
Connecticut	-	-	-	-	-	-	-	-	-	-	-	23	-	23	26	49
Hawaii	-	-	-	-	-	-	-	-	-	-	-	30	-	30	9	39
Idaho	-	-	-	-	-	-	-	-	-	-	-	2	-	2	1	3
Kansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	9	-	9	7	16
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	3	-	3	11	14
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Minnesota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	2
Montana	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
New Jersey	-	-	-	-	-	-	-	-	-	-	-	17	-	17	18	35
New Mexico	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New York	-	-	-	-	-	-	-	-	-	-	-	6	-	6	2	8
North Carolina	-	-	-	-	-	-	-	-	-	-	-	2	-	2	1	3
Oregon	-	-	-	-	-	-	-	-	-	-	-	24	-	24	20	44
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	6	-	6	7	13
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Texas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Virginia	-	-	-	-	-	-	-	-	-	-	-	12	-	12	8	20
Washington	-	-	-	2	-	2	-	2	-	-	-	14	-	14	8	22
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	3	-	3	1	4
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	2	-	2	-	2	-	-	-	171	-	171	128	299

TABLE B-23. - Injury experience and worktime data by general work location at traprock operations in the United States, by State, 1971 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Frequency rates per million man-hours															
Alaska	-	-	-	-	-	-	-	-	-	-	-	80.50	-	80.50	150.24	104.83
Arizona	-	-	-	-	-	-	-	-	-	-	-	48.73	-	48.73	81.27	56.24
California	-	-	-	-	-	-	-	-	-	-	-	86.47	-	86.47	29.88	55.53
Colorado	-	-	-	-	-	-	-	-	-	-	-	31.83	-	31.83	52.91	35.36
Connecticut	-	-	-	-	-	-	-	-	-	-	-	123.55	-	123.55	94.38	106.15
Hawaii	-	-	-	-	-	-	-	-	-	-	-	88.12	-	88.12	94.13	89.44
Idaho	-	-	-	-	-	-	-	-	-	-	-	21.63	-	21.63	22.32	21.85
Kansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	29.52	-	29.52	24.14	26.90
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	9.95	-	9.95	40.77	24.50
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Minneaota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	-	-	-	-	-	-	-	-	-	-	32.87	-	32.87	169.61	55.07
Montana	-	-	-	-	-	-	-	-	-	-	-	22.76	-	22.76	-	18.54
New Jersey	-	-	-	-	-	-	-	-	-	-	-	21.92	-	21.92	31.44	25.96
New Mexico	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New York	-	-	-	-	-	-	-	-	-	-	-	38.82	-	38.82	17.28	29.60
North Carolina	-	-	-	-	-	-	-	-	-	-	-	8.88	-	8.88	11.07	9.51
Oregon	-	-	-	-	-	-	-	-	-	-	-	16.92	-	16.84	49.61	24.06
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	15.09	-	15.09	19.00	16.97
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Texas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Virginia	-	-	-	-	-	-	-	-	-	-	-	44.80	-	44.80	51.08	47.11
Washington	-	-	-	2.46	-	2.46	-	2.02	-	-	-	17.19	-	17.19	45.44	22.22
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	61.30	-	61.30	5.08	16.28
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Combined rate	-	-	-	.35	-	.35	-	.22	-	-	-	29.64	-	29.60	38.65	32.90

TABLE B-23. - Injury experience and worktime data by general work location at traprock operations in the United States, by State, 1971 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Severity rates per million man-hours															
Alaska	-	-	-	-	-	-	-	-	-	-	-	161	-	161	150	157
Arizona	-	-	-	-	-	-	-	-	-	-	-	268	-	268	3,820	1,087
California	-	-	-	-	-	-	-	-	-	-	-	1,902	-	1,902	837	1,320
Colorado	-	-	-	-	-	-	-	-	-	-	-	913	-	913	317	813
Connecticut	-	-	-	-	-	-	-	-	-	-	-	1,230	-	1,230	1,652	1,482
Hawaii	-	-	-	-	-	-	-	-	-	-	-	1,257	-	1,257	1,307	1,268
Idaho	-	-	-	-	-	-	-	-	-	-	-	670	-	670	670	670
Kansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	1,053	-	1,053	1,693	1,365
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	129	-	129	1,456	756
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Minnesota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	-	-	-	-	-	-	-	-	-	-	920	-	920	678	881
Montana	-	-	-	-	-	-	-	-	-	-	-	228	-	228	-	185
New Jersey	-	-	-	-	-	-	-	-	-	-	-	387	-	387	412	398
New Mexico	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New York	-	-	-	-	-	-	-	-	-	-	-	388	-	388	475	426
North Carolina	-	-	-	-	-	-	-	-	-	-	-	258	-	258	55	200
Oregon	-	-	-	-	-	-	-	-	-	-	-	338	-	336	970	476
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	453	-	453	147	305
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Texas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Virginia	-	-	-	-	-	-	-	-	-	-	-	1,000	-	1,000	779	919
Washington	-	-	-	14,738	-	14,738	-	12,117	-	-	-	488	-	488	596	507
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	1,921	-	1,921	122	480
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Combined rate	-	-	-	2,080	-	2,077	-	1,320	-	-	-	575	-	574	810	660

TABLE B-23. - Injury experience and worktime data by general work location at traprock operations in the United States, by State, 1971 - Continued

State	Active operations		Average men working daily							Average days active				
	Quarries	Mills	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines	Open quarries	Other surface mining	Total mining activities	Mills
			Underground	Surface	Total										
Alaska	4	3	-	-	-	8	-	8	4	12	-	194	-	194	208
Arizona	8	2	-	-	-	20	-	20	6	26	-	256	-	256	256
California	16	7	-	-	-	85	-	85	102	187	-	204	-	204	205
Colorado	6	2	-	-	-	45	-	45	9	54	-	249	-	249	250
Connecticut	13	10	-	-	-	94	-	94	150	244	-	241	-	241	228
Hawaii	7	6	-	-	-	162	-	162	48	210	-	263	-	263	249
Idaho	17	9	-	-	-	82	-	82	35	117	-	140	-	140	158
Kansas	-	1	-	-	-	-	-	-	4	4	-	-	-	-	166
Maryland	5	6	-	-	-	128	-	128	143	271	-	263	-	263	246
Massachusetts	15	16	-	-	-	142	-	142	129	271	-	253	-	253	245
Michigan	3	3	-	-	-	14	-	14	4	18	-	73	-	73	69
Minnesota	1	1	-	-	-	4	-	4	11	15	-	133	-	133	133
Missouri	2	2	-	-	-	14	-	14	3	17	-	272	-	272	246
Montana	4	4	-	-	-	22	-	22	5	27	-	250	-	250	250
New Jersey	21	20	-	-	-	404	-	404	268	672	-	239	-	239	261
New Mexico	11	11	-	-	-	20	-	20	4	24	-	180	-	180	177
New York	3	3	-	-	-	81	-	81	51	132	-	223	-	223	256
North Carolina	9	7	-	-	-	109	-	109	45	154	-	238	-	238	228
Oregon	273	175	2	1	3	801	-	804	211	1,015	277	213	-	214	236
Pennsylvania	20	18	-	-	-	179	-	179	169	348	-	262	-	262	260
South Dakota	1	-	-	-	-	2	-	2	-	2	-	180	-	180	-
Texas	2	2	-	-	-	11	-	11	3	14	-	261	-	261	248
Virginia	11	9	-	-	-	109	-	109	57	166	-	265	-	265	285
Washington	214	92	-	-	-	639	-	639	138	777	-	159	-	159	159
Wisconsin	3	3	-	-	-	25	-	25	95	120	-	245	-	245	259
Wyoming	1	1	-	-	-	3	-	3	1	4	-	339	-	339	254
Total or average	670	413	2	1	3	3,203	-	3,206	1,695	4,901	277	217	-	217	236

TABLE B-23. - Injury experience and worktime data by general work location at traprock operations in the United States, by State, 1971 - Continued

State	Man-days worked							Man-hours worked						
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
Alaska	-	-	-	1,552	-	1,552	832	2,384	-	-	-	12,423	-	12,423	6,656	19,079
Arizona	-	-	-	5,130	-	5,130	1,538	6,668	-	-	-	41,040	-	41,040	12,305	53,345
California	-	-	-	17,325	-	17,325	20,917	38,242	-	-	-	138,774	-	138,774	167,343	306,117
Colorado	-	-	-	11,219	-	11,219	2,250	13,469	-	-	-	94,237	-	94,237	18,900	113,137
Connecticut	-	-	-	22,625	-	22,625	34,275	56,900	-	-	-	186,152	-	186,152	275,475	461,627
Hawaii	-	-	-	42,556	-	42,556	11,952	54,508	-	-	-	340,452	-	340,452	95,616	436,068
Idaho	-	-	-	11,496	-	11,496	5,515	17,011	-	-	-	92,471	-	92,471	44,800	137,271
Kansas	-	-	-	-	-	-	664	664	-	-	-	-	-	-	5,043	5,043
Maryland	-	-	-	33,704	-	33,704	35,126	68,830	-	-	-	304,916	-	304,916	289,970	594,886
Massachusetts	-	-	-	35,908	-	35,908	31,650	67,558	-	-	-	301,552	-	301,552	269,831	571,383
Michigan	-	-	-	1,025	-	1,025	275	1,300	-	-	-	8,443	-	8,443	2,243	10,686
Minnesota	-	-	-	532	-	532	1,463	1,995	-	-	-	4,788	-	4,788	13,167	17,955
Missouri	-	-	-	3,802	-	3,802	737	4,539	-	-	-	30,420	-	30,420	5,896	36,316
Montana	-	-	-	5,493	-	5,493	1,250	6,743	-	-	-	43,941	-	43,941	10,000	53,941
New Jersey	-	-	-	96,609	-	96,609	69,868	166,477	-	-	-	775,419	-	775,419	572,594	1,348,013
New Mexico	-	-	-	3,592	-	3,592	707	4,299	-	-	-	28,733	-	28,733	5,656	34,389
New York	-	-	-	18,074	-	18,074	13,080	31,154	-	-	-	154,548	-	154,548	115,708	270,256
North Carolina	-	-	-	25,900	-	25,900	10,281	36,181	-	-	-	225,127	-	225,127	90,324	315,451
Oregon	582	250	832	170,919	-	171,751	49,841	221,592	4,655	2,000	6,655	1,418,677	-	1,425,332	403,104	1,828,436
Pennsylvania	-	-	-	46,968	-	46,968	44,022	90,990	-	-	-	397,585	-	397,585	368,450	766,035
South Dakota	-	-	-	361	-	361	-	361	-	-	-	2,891	-	2,891	-	2,891
Texas	-	-	-	2,873	-	2,873	745	3,618	-	-	-	28,305	-	28,305	7,025	35,330
Virginia	-	-	-	28,835	-	28,835	16,262	45,097	-	-	-	267,881	-	267,881	156,625	424,506
Washington	-	-	-	101,608	-	101,608	22,002	123,610	-	-	-	814,242	-	814,242	176,063	990,305
Wisconsin	-	-	-	6,117	-	6,117	24,595	30,712	-	-	-	48,936	-	48,936	196,758	245,694
Wyoming	-	-	-	1,016	-	1,016	254	1,270	-	-	-	8,128	-	8,128	2,032	10,160
Total	582	250	832	695,239	-	696,071	400,101	1,096,172	4,655	2,000	6,655	5,770,081	-	5,776,736	3,311,584	9,088,320

TABLE B-24. - Injury experience and worktime data by general work location at miscellaneous stone operations in the United States, by State, 1971

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Injuries															
Alaska	-	-	-	-	-	-	-	-	-	-	-	4	-	4	2	6
Arizona	-	-	-	-	-	-	-	-	-	-	-	2	-	2	1	3
California	-	-	-	-	-	-	1	1	-	-	-	9	-	9	27	36
Colorado	-	-	-	-	-	-	-	-	-	-	-	2	-	2	1	3
Hawaii	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	2
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maine	-	-	-	1	-	1	-	1	-	-	-	2	-	2	6	8
Maryland	-	-	-	-	-	-	-	-	-	-	-	3	-	3	1	4
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	2
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Montana	-	-	-	-	-	-	-	-	-	-	-	6	-	6	2	8
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	3	-	3	-	3
New Jersey	-	-	-	-	-	-	-	-	-	-	-	4	-	4	2	6
New Mexico	-	-	-	-	-	-	-	-	-	-	-	1	-	1	2	3
New York	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oregon	-	-	-	-	-	-	-	-	-	-	-	4	-	4	3	7
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	3	-	3	4	7
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Texas	-	-	-	-	-	-	-	-	-	-	-	3	-	3	5	8
Utah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vermont	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Virginia	-	-	-	-	-	-	1	1	-	-	-	2	-	2	9	11
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	1	-	1	2	3	-	-	-	50	-	50	69	119

TABLE B-24. - Injury experience and worktime data by general work location at miscellaneous stone operations in the United States, by State, 1971 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Frequency rates per million man-hours															
Alaska	-	-	-	-	-	-	-	-	-	-	-	22.10	-	22.10	44.38	26.55
Arizona	-	-	-	-	-	-	-	-	-	-	-	64.82	-	64.82	125.74	77.30
California	-	-	-	-	-	-	1.97	1.18	-	-	-	26.37	-	26.37	53.13	42.38
Colorado	-	-	-	-	-	-	-	-	-	-	-	19.17	-	19.17	50.51	24.16
Hawaii	-	-	-	-	-	-	-	-	-	-	-	15.36	-	15.36	104.84	26.79
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maine	-	-	-	51.73	-	51.73	-	24.71	-	-	-	103.46	-	103.46	283.86	197.68
Maryland	-	-	-	-	-	-	-	-	-	-	-	79.31	-	79.31	69.08	76.48
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	34.29	-	34.29	63.49	44.53
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.59	5.65
Montana	-	-	-	-	-	-	-	-	-	-	-	25.62	-	25.62	43.12	28.51
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	114.99	-	114.99	-	69.03
New Jersey	-	-	-	-	-	-	-	-	-	-	-	139.27	-	139.27	29.90	62.75
New Mexico	-	-	-	-	-	-	-	-	-	-	-	18.59	-	18.59	181.60	46.30
New York	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oregon	-	-	-	-	-	-	-	-	-	-	-	23.54	-	23.54	88.05	34.32
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	18.87	-	18.87	114.48	36.09
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	-	-	-	46.30	32.05
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Texas	-	-	-	-	-	-	-	-	-	-	-	19.14	-	19.14	34.23	26.42
Utah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vermont	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Virginia	-	-	-	-	-	-	3.38	2.53	-	-	-	20.28	-	20.28	30.41	27.87
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Combined rate	-	-	-	.53	-	.53	1.34	.88	-	-	-	26.39	-	26.32	46.06	35.03

TABLE B-24. - Injury experience and worktime data by general work location at miscellaneous stone operations in the United States, by State, 1971 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Severity rates per million man-hours															
Alaska	-	-	-	-	-	-	-	-	-	-	-	558	-	558	799	606
Arizona	-	-	-	-	-	-	-	-	-	-	-	1,037	-	1,037	3,269	1,494
California	-	-	-	-	-	-	11,806	7,063	-	-	-	776	-	776	1,013	918
Colorado	-	-	-	-	-	-	-	-	-	-	-	565	-	565	1,010	636
Hawaii	-	-	-	-	-	-	-	-	-	-	-	461	-	461	734	496
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maine	-	-	-	310,366	-	310,366	-	148,262	-	-	-	9,828	-	9,828	2,697	6,103
Maryland	-	-	-	-	-	-	-	-	-	-	-	1,005	-	1,005	69	746
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	480	-	480	2,032	1,024
Michigan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	356	305
Montana	-	-	-	-	-	-	-	-	-	-	-	756	-	756	776	759
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	2,261	-	2,261	-	1,358
New Jersey	-	-	-	-	-	-	-	-	-	-	-	2,960	-	2,960	2,780	2,834
New Mexico	-	-	-	-	-	-	-	-	-	-	-	205	-	205	14,074	2,562
New York	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oregon	-	-	-	-	-	-	-	-	-	-	-	695	-	695	2,289	961
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	226	-	226	2,318	603
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12,731	8,814
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Texas	-	-	-	-	-	-	-	-	-	-	-	300	-	300	164	234
Utah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vermont	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Virginia	-	-	-	-	-	-	20,270	15,204	-	-	-	558	-	558	649	626
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Combined rate	-	-	-	3,166	-	3,159	8,011	5,298	-	-	-	695	-	693	1,185	910

TABLE B-24. - Injury experience and worktime data by general work location at miscellaneous stone operations in the United States, by State, 1971 - Continued

State	Active operations		Average men working daily							Average days active				
	Quarries	Mills	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines	Open quarries	Other surface mining	Total mining activities	Mills
			Underground	Surface	Total										
Alaska	10	9	-	-	-	98	-	98	24	122	-	231	-	231	235
Arizona	12	5	-	-	-	19	-	19	6	25	-	203	-	203	166
California	67	26	-	-	-	214	-	214	247	461	-	197	-	197	254
Colorado	20	9	-	-	-	66	-	66	16	82	-	198	-	198	151
Hawaii	26	9	-	-	-	47	-	47	6	53	-	173	-	173	199
Idaho	1	-	-	-	-	5	-	5	-	5	-	90	-	90	-
Indiana	13	-	-	-	-	11	-	11	-	11	-	106	-	106	-
Maine	2	2	-	-	-	12	-	12	13	25	-	179	-	179	181
Maryland	7	4	-	-	-	20	-	20	7	27	-	236	-	236	254
Massachusetts	3	3	-	-	-	20	-	20	10	30	-	182	-	182	197
Michigan	18	2	-	-	-	26	4	30	3	33	-	211	149	203	221
Missouri	2	2	-	-	-	12	-	12	71	83	-	213	-	213	267
Montana	20	20	-	-	-	131	-	131	26	157	-	224	-	224	223
Nevada	3	-	-	-	-	2	-	2	-	2	-	32	-	32	-
New Hampshire	2	2	-	-	-	14	-	14	9	23	-	196	-	196	193
New Jersey	2	2	-	-	-	12	-	12	28	40	-	294	-	294	296
New Mexico	23	19	-	-	-	40	-	40	10	50	-	168	-	168	138
New York	1	1	-	-	-	7	-	7	7	14	-	281	-	281	244
North Dakota	7	1	-	-	-	3	-	3	1	4	-	237	-	237	223
Oklahoma	1	1	-	-	-	1	-	1	1	2	-	223	-	223	223
Oregon	5	3	-	-	-	96	-	96	20	116	-	221	-	221	213
Pennsylvania	8	5	-	-	-	72	-	72	15	87	-	250	-	250	263
Rhode Island	2	1	-	-	-	9	-	9	15	24	-	133	-	133	180
South Dakota	1	-	-	-	-	2	-	2	-	2	-	102	-	102	-
Texas	3	2	-	-	-	73	-	73	63	136	-	265	-	265	290
Utah	10	-	-	-	-	10	-	10	-	10	-	195	-	195	-
Vermont	1	1	-	-	-	1	-	1	1	2	-	177	-	177	177
Virginia	10	3	-	-	-	50	-	50	142	192	-	247	-	247	261
Washington	6	-	-	-	-	3	-	3	-	3	-	33	-	33	-
Wyoming	26	2	-	-	-	18	-	18	3	21	-	134	-	134	236
Total or average	312	134	-	-	-	1,094	4	1,098	744	1,842	-	212	149	212	249

TABLE 8-24. - Injury experience and worktime data by general work location at miscellaneous stone operations in the United States, by State, 1971 - Continued

State	Man-days worked							Man-hours worked							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
Alaska	-	-	-	22,611	-	22,611	5,633	28,244	-	-	-	180,966	-	180,966	45,064	226,030
Arizona	-	-	-	3,857	-	3,857	995	4,852	-	-	-	30,856	-	30,856	7,953	38,809
California	-	-	-	42,176	-	42,176	62,837	105,013	-	-	-	341,313	-	341,313	508,225	849,538
Colorado	-	-	-	13,044	-	13,044	2,419	15,463	-	-	-	104,354	-	104,354	19,798	124,152
Hawaii	-	-	-	8,137	-	8,137	1,192	9,329	-	-	-	65,107	-	65,107	9,538	74,645
Idaho	-	-	-	450	-	450	-	450	-	-	-	3,600	-	3,600	-	3,600
Indiana	-	-	-	1,162	-	1,162	-	1,162	-	-	-	10,404	-	10,404	-	10,404
Maine	-	-	-	2,148	-	2,148	2,349	4,497	-	-	-	19,332	-	19,332	21,137	40,469
Maryland	-	-	-	4,710	-	4,710	1,777	6,487	-	-	-	37,824	-	37,824	14,476	52,300
Massachusetts	-	-	-	3,646	-	3,646	1,969	5,615	-	-	-	29,166	-	29,166	15,750	44,916
Michigan	-	-	-	5,485	597	6,082	662	6,744	-	-	-	43,078	4,764	47,842	5,296	53,138
Missouri	-	-	-	2,556	-	2,556	18,956	21,512	-	-	-	25,239	-	25,239	151,651	176,890
Montana	-	-	-	29,279	-	29,279	5,798	35,077	-	-	-	234,232	-	234,232	46,384	280,616
Nevada	-	-	-	65	-	65	-	65	-	-	-	520	-	520	-	520
New Hampshire	-	-	-	2,741	-	2,741	1,737	4,478	-	-	-	26,089	-	26,089	17,370	43,459
New Jersey	-	-	-	3,522	-	3,522	8,294	11,816	-	-	-	28,721	-	28,721	66,896	95,617
New Mexico	-	-	-	6,723	-	6,723	1,377	8,100	-	-	-	53,781	-	53,781	11,013	64,794
New York	-	-	-	1,970	-	1,970	1,705	3,675	-	-	-	15,763	-	15,763	13,636	29,399
North Dakota	-	-	-	710	-	710	223	933	-	-	-	5,678	-	5,678	1,784	7,462
Oklahoma	-	-	-	223	-	223	223	446	-	-	-	1,784	-	1,784	1,784	3,568
Oregon	-	-	-	21,237	-	21,237	4,259	25,496	-	-	-	169,893	-	169,893	34,072	203,965
Pennsylvania	-	-	-	18,021	-	18,021	3,940	21,961	-	-	-	158,996	-	158,996	34,940	193,936
Rhode Island	-	-	-	1,200	-	1,200	2,700	3,900	-	-	-	9,600	-	9,600	21,600	31,200
South Dakota	-	-	-	204	-	204	-	204	-	-	-	1,629	-	1,629	-	1,629
Texas	-	-	-	19,360	-	19,360	18,260	37,620	-	-	-	156,755	-	156,755	146,082	302,837
Utah	-	-	-	1,951	-	1,951	-	1,951	-	-	-	17,560	-	17,560	-	17,560
Vermont	-	-	-	177	-	177	177	354	-	-	-	927	-	927	927	1,854
Virginia	-	-	-	12,329	-	12,329	37,000	49,329	-	-	-	98,633	-	98,633	296,003	394,636
Washington	-	-	-	100	-	100	-	100	-	-	-	599	-	599	-	599
Wyoming	-	-	-	2,413	-	2,413	708	3,121	-	-	-	22,440	-	22,440	6,560	29,000
Total	-	-	-	232,207	597	232,804	185,190	417,994	-	-	-	1,894,839	4,764	1,899,603	1,497,939	3,397,542

TABLE B-25. - Injury experience and worktime data by general work location at stone quarries and mills in the United States, by State, 1971

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Injuries															
Alabama	-	-	-	-	-	-	-	-	2	-	2	12	8	22	29	51
Alaska	-	-	-	-	-	-	-	-	-	-	-	13	-	13	4	17
Arizona	-	-	-	-	-	-	-	-	-	-	-	7	-	7	19	26
Arkansas	-	-	-	-	-	-	1	1	4	-	4	27	-	31	47	78
California	4	-	4	2	-	6	1	7	11	3	14	59	2	75	95	170
Colorado	-	-	-	-	-	-	-	-	-	-	-	13	-	13	15	28
Connecticut	-	-	-	-	-	-	-	-	-	-	-	24	-	24	28	52
Florida	-	-	-	5	-	5	1	6	-	-	-	78	7	85	78	163
Georgia	-	-	-	2	-	2	-	2	7	1	8	64	-	72	76	148
Hawaii	-	-	-	-	-	-	-	-	-	-	-	40	-	40	20	60
Idaho	-	-	-	-	-	-	-	-	-	-	-	6	-	6	8	14
Illinois	-	-	-	2	-	2	2	4	6	6	12	74	-	86	117	203
Indiana	-	-	-	1	-	1	-	1	-	-	-	57	-	57	66	123
Iowa	-	-	-	1	-	1	3	4	3	4	7	63	-	70	40	110
Kansas	-	-	-	-	-	-	-	-	2	2	4	10	-	14	19	33
Kentucky	1	-	1	-	-	1	-	1	17	25	42	53	-	95	100	195
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	37	37	19	56
Maine	-	-	-	1	-	1	1	2	2	1	3	6	-	9	15	24
Maryland	-	-	-	-	-	-	-	-	-	1	1	24	1	26	15	41
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	16	-	16	29	45
Michigan	-	-	-	-	-	-	1	1	-	-	-	24	-	24	58	82
Minnesota	-	-	-	-	-	-	-	-	-	-	-	21	-	21	78	99
Mississippi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	1	1	1	-	2	2	4	23	5	28	55	-	83	136	219
Montana	-	-	-	-	-	-	-	-	-	-	-	10	-	10	3	13
Nebraska	-	-	-	-	-	-	-	-	2	-	2	4	-	6	28	34
Nevada	-	-	-	-	-	-	-	-	-	-	-	5	-	5	11	16
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	8	-	8	7	15
New Jersey	-	-	-	-	-	-	-	-	-	-	-	34	-	34	44	78
New Mexico	-	-	-	-	-	-	-	-	-	-	-	5	-	5	7	12
New York	-	-	-	-	-	-	-	-	-	-	-	47	-	47	59	106
North Carolina	-	-	-	3	-	3	-	3	-	-	-	23	-	23	32	55
North Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ohio	-	-	-	2	-	2	1	3	1	1	2	78	-	80	101	181
Oklahoma	-	-	-	-	-	-	1	1	9	-	9	27	-	36	54	90
Oregon	-	-	-	-	-	-	-	-	-	-	-	29	-	29	55	84
Pennsylvania	1	-	1	1	-	2	-	2	21	-	21	106	-	127	153	280
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	3	-	3	1	4
South Carolina	-	-	-	1	-	1	1	2	-	-	-	9	-	9	15	24
South Dakota	-	-	-	-	-	-	-	-	-	-	-	19	-	19	13	32
Tennessee	-	-	-	2	-	2	1	3	-	3	3	40	-	43	80	123
Texas	-	-	-	-	-	-	2	2	2	-	2	91	25	118	115	233
Utah	-	-	-	-	-	-	-	-	-	-	-	4	-	4	7	11
Vermont	-	-	-	1	-	1	-	1	9	-	9	34	-	43	17	60
Virginia	-	-	-	1	-	1	2	3	1	2	3	89	-	92	121	213
Washington	-	-	-	3	-	3	-	3	-	-	-	17	-	17	10	27
West Virginia	-	-	-	1	-	1	1	2	6	6	12	18	-	30	28	58
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	62	-	62	33	95
Wyoming	-	-	-	-	-	-	-	-	2	1	3	5	-	8	4	12
Total	6	1	7	30	-	37	21	58	130	61	191	1,513	80	1,784	2,109	3,893

TABLE 8-25. - Injury experience and worktime data by general work location at stone quarries and mills in the United States, by State, 1971 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Frequency rates per million man-hours															
Alabama	-	-	-	-	-	-	-	-	29.58	-	24.71	8.82	75.08	14.22	7.44	9.36
Alaska	-	-	-	-	-	-	-	-	-	-	-	23.27	-	23.27	31.58	24.80
Arizona	-	-	-	-	-	-	-	-	-	-	-	21.37	-	21.37	22.00	21.83
Arkansas	-	-	-	-	-	-	0.46	0.30	75.32	-	56.30	25.09	-	27.02	21.63	23.49
California	18.84	-	15.17	0.99	-	2.63	.12	.67	51.80	58.56	53.11	29.23	1,037.34	32.84	11.74	16.39
Colorado	-	-	-	-	-	-	-	-	-	-	-	22.99	-	22.98	17.97	20.00
Connecticut	-	-	-	-	-	-	-	-	-	-	-	94.70	-	94.70	60.04	72.24
Florida	-	-	-	1.76	-	1.64	.22	.80	-	-	-	27.49	32.02	27.82	17.42	21.64
Georgia	-	-	-	.83	-	.78	-	.30	53.56	33.79	49.91	26.45	-	27.90	18.40	22.05
Hawaii	-	-	-	-	-	-	-	-	-	-	-	75.86	-	75.86	31.70	51.81
Idaho	-	-	-	-	-	-	-	-	-	-	-	23.56	-	21.02	42.01	29.42
Illinois	-	-	-	.68	-	.60	.42	.49	18.09	67.45	28.52	25.20	-	25.62	24.32	24.86
Indiana	-	-	-	.46	-	.46	-	.16	-	-	-	26.12	-	25.95	15.53	19.08
Iowa	-	-	-	.40	-	.36	.93	.67	20.15	52.74	31.15	24.91	-	25.42	12.34	18.35
Kansas	-	-	-	-	-	-	-	-	13.49	43.19	20.56	6.62	-	8.22	9.11	8.71
Kentucky	1.69	-	1.25	-	-	.34	-	.20	28.77	121.13	52.68	24.39	-	31.98	49.15	38.96
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	64.01	63.74	18.21	34.48
Maine	-	-	-	6.55	-	5.67	1.74	2.67	128.73	124.01	127.12	39.28	-	51.04	26.15	32.00
Maryland	-	-	-	-	-	-	-	-	-	162.97	29.66	19.36	48.20	20.09	9.50	14.27
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	18.69	-	18.69	31.42	25.29
Michigan	-	-	-	-	-	-	.19	.14	-	-	-	14.45	-	14.29	10.90	11.71
Minnesota	-	-	-	-	-	-	-	-	-	-	-	32.03	-	32.03	44.36	41.01
Mississippi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	3.80	.91	.32	-	.48	.39	.43	27.71	18.99	25.61	17.86	-	19.89	26.64	23.60
Montana	-	-	-	-	-	-	-	-	-	-	-	21.79	-	21.79	6.79	14.43
Nebraska	-	-	-	-	-	-	-	-	58.19	-	47.00	7.57	-	10.51	36.23	25.30
Nevada	-	-	-	-	-	-	-	-	-	-	-	15.35	-	15.35	28.50	22.48
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	60.82	-	60.82	27.76	39.09
New Jersey	-	-	-	-	-	-	-	-	-	-	-	33.49	-	33.49	46.88	39.92
New Mexico	-	-	-	-	-	-	-	-	-	-	-	21.07	-	21.07	31.36	26.06
New York	-	-	-	-	-	-	-	-	-	-	-	21.12	-	20.83	13.34	15.87
North Carolina	-	-	-	1.28	-	1.28	-	.74	-	-	-	9.80	-	9.80	18.57	13.51
North Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ohio	-	-	-	.62	-	.56	.13	.27	3.38	22.34	5.87	24.27	-	22.51	13.10	16.07
Oklahoma	-	-	-	-	-	-	.64	.32	184.00	-	122.79	18.29	-	23.23	34.54	28.91
Oregon	-	-	-	-	-	-	-	-	-	-	-	17.84	-	17.70	56.89	32.24
Pennsylvania	1.68	-	1.33	.19	-	.33	-	.12	35.33	-	27.99	20.30	-	21.27	13.71	16.34
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	123.56	-	123.56	14.75	43.44
South Carolina	-	-	-	1.43	-	1.43	.79	1.02	-	-	-	12.84	-	12.84	11.88	12.22
South Dakota	-	-	-	-	-	-	-	-	-	-	-	41.09	-	41.09	18.63	27.58
Tennessee	-	-	-	.82	-	.79	.28	.49	-	71.90	31.60	16.48	-	17.05	22.05	20.00
Texas	-	-	-	-	-	-	.26	.18	120.12	-	104.82	29.19	59.90	33.20	15.23	20.98
Utah	-	-	-	-	-	-	-	-	-	-	-	16.90	-	16.33	14.05	14.80
Vermont	-	-	-	.86	-	.73	-	.40	55.07	-	44.09	29.30	-	31.51	14.95	23.98
Virginia	-	-	-	.31	-	.29	.46	.39	6.32	55.73	15.46	27.62	-	26.93	27.71	27.37
Washington	-	-	-	3.07	-	3.07	-	1.78	-	-	-	17.41	-	17.40	14.06	15.99
West Virginia	-	-	-	1.05	-	.81	.70	.75	27.46	90.77	42.16	18.87	-	24.22	19.68	21.79
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	35.35	-	35.27	21.38	28.78
Wyoming	-	-	-	-	-	-	-	-	33.60	86.81	42.23	39.30	-	40.35	14.52	25.33
Combined rate	1.40	.79	1.26	.46	-	.51	.19	.31	30.31	48.24	34.39	23.20	59.35	24.74	18.75	21.09

TABLE B-25. - Injury experience and worktime data by general work location at stone quarries and mills in the United States, by State, 1971 - Continued

State	Fatal								Nonfatal							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
	Severity rates per million man-hours															
Alabama	-	-	-	-	-	-	-	-	887	-	741	307	2,327	469	1,824	1,439
Alaska	-	-	-	-	-	-	-	-	-	-	-	521	-	521	497	516
Arizona	-	-	-	-	-	-	-	-	-	-	-	314	-	314	514	459
Arkansas	-	-	-	-	-	-	2,761	1,807	847	-	633	481	-	491	707	632
California	113,011	-	91,048	5,945	-	15,762	742	4,049	833	1,854	1,032	1,484	55,498	1,477	387	627
Colorado	-	-	-	-	-	-	-	-	-	-	-	730	-	730	2,031	1,505
Connecticut	-	-	-	-	-	-	-	-	-	-	-	1,022	-	1,022	1,104	1,075
Florida	-	-	-	10,574	-	9,818	1,340	4,779	-	-	-	699	851	710	1,195	998
Georgia	-	-	-	4,959	-	4,651	-	1,788	497	270	455	803	-	782	489	602
Hawaii	-	-	-	-	-	-	-	-	-	-	-	1,075	-	1,075	431	724
Idaho	-	-	-	-	-	-	-	-	-	-	-	503	-	448	467	456
Illinois	-	-	-	4,086	-	3,574	2,495	2,939	229	809	352	905	-	836	976	918
Indiana	-	-	-	2,749	-	2,731	-	931	-	-	-	968	-	962	439	617
Iowa	-	-	-	2,372	-	2,179	5,555	4,004	3,136	2,531	2,932	3,159	-	3,140	435	1,678
Kansas	-	-	-	-	-	-	-	-	74	130	87	144	-	138	410	288
Kentucky	10,154	-	7,526	-	-	2,020	-	1,199	569	4,458	1,575	640	-	891	1,121	985
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	1,695	1,688	221	746
Maine	-	-	-	39,281	-	34,024	10,458	15,999	965	5,456	2,500	1,368	-	1,520	190	503
Maryland	-	-	-	-	-	-	-	-	-	1,304	237	720	337	701	540	612
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	199	-	199	1,132	683
Michigan	-	-	-	-	-	-	1,128	857	-	-	-	418	-	414	370	381
Minnesota	-	-	-	-	-	-	-	-	-	-	-	735	-	735	1,118	1,014
Mississippi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Missouri	-	22,794	5,488	1,948	-	2,876	2,351	2,587	1,120	555	984	449	-	589	1,097	868
Montana	-	-	-	-	-	-	-	-	-	-	-	477	-	477	122	303
Nebraska	-	-	-	-	-	-	-	-	58	-	47	265	-	249	4,390	2,631
Nevada	-	-	-	-	-	-	-	-	-	-	-	506	-	506	992	770
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	882	-	882	611	704
New Jersey	-	-	-	-	-	-	-	-	-	-	-	842	-	842	822	832
New Mexico	-	-	-	-	-	-	-	-	-	-	-	1,159	-	1,159	869	1,018
New York	-	-	-	-	-	-	-	-	-	-	-	1,010	-	996	314	544
North Carolina	-	-	-	7,668	-	7,668	-	4,422	-	-	-	210	-	210	645	395
North Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ohio	-	-	-	3,734	-	3,376	778	1,598	27	179	47	783	-	712	507	572
Oklahoma	-	-	-	-	-	-	3,838	1,927	7,912	-	5,280	1,392	-	1,576	3,803	2,694
Oregon	-	-	-	-	-	-	-	-	-	-	-	376	-	373	1,021	613
Pennsylvania	10,095	-	7,996	1,149	-	2,009	-	700	1,159	-	918	1,048	-	1,032	597	749
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	1,236	-	1,236	4,056	3,312
South Carolina	-	-	-	8,558	-	8,558	4,751	6,110	-	-	-	796	-	796	2,714	2,029
South Dakota	-	-	-	-	-	-	-	-	-	-	-	1,051	-	1,051	640	804
Tennessee	-	-	-	4,944	-	4,758	1,654	2,927	-	815	358	1,222	-	1,189	632	861
Texas	-	-	-	-	-	-	1,589	1,081	1,441	-	1,258	836	872	843	1,417	1,233
Utah	-	-	-	-	-	-	-	-	-	-	-	237	-	229	411	351
Vermont	-	-	-	5,170	-	4,397	-	2,398	875	-	701	1,346	-	1,249	217	780
Virginia	-	-	-	1,862	-	1,756	2,748	2,313	139	557	217	1,848	-	1,756	1,511	1,618
Washington	-	-	-	18,430	-	18,421	-	10,660	-	-	-	540	-	539	160	380
West Virginia	-	-	-	6,291	-	4,845	4,217	4,509	101	1,119	337	3,820	-	3,019	689	1,773
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	790	-	788	401	607
Wyoming	-	-	-	-	-	-	-	-	941	694	901	456	-	615	323	445
Combined rate	8,393	4,745	7,562	2,760	-	3,079	1,120	1,885	824	1,293	931	963	1,404	969	854	899

TABLE B-25. - Injury experience and worktime data by general work location at stone quarries and mills in the United States, by State, 1971 - Continued

State	Active operations			Average men working daily							Average days active				
	Underground mines	Surface mines	Mills	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines	Open quarries	Other surface mining	Total mining activities	Mills
				Underground	Surface	Total										
Alabama	2	63	59	32	6	38	637	32	707	1,612	2,319	264	250	313	254	295
Alaska	-	26	22	-	-	-	294	-	294	65	359	-	238	-	238	244
Arizona	-	89	37	-	-	-	162	-	162	327	489	-	250	-	250	330
Arkansas	3	90	53	24	8	32	498	-	530	901	1,431	264	246	-	247	293
California	3	216	112	94	21	115	1,170	6	1,291	3,042	4,333	286	214	37	220	330
Colorado	1	149	35	2	-	2	370	-	372	364	736	7	187	-	186	284
Connecticut	-	24	17	-	-	-	127	-	127	236	363	-	244	-	244	246
Florida	-	98	80	-	-	-	1,140	90	1,230	1,608	2,838	-	283	304	285	324
Georgia	6	93	85	53	12	65	1,087	-	1,152	1,760	2,912	308	243	-	247	276
Hawaii	-	43	25	-	-	-	279	-	279	263	542	-	237	-	237	304
Idaho	1	27	14	10	3	13	179	-	192	106	298	296	176	-	184	218
Illinois	10	236	177	152	38	190	1,431	-	1,621	2,052	3,673	265	235	-	239	286
Indiana	1	135	115	7	2	9	1,046	-	1,055	1,700	2,755	200	241	-	241	293
Iowa	9	307	163	67	31	98	1,460	-	1,558	1,393	2,951	250	194	-	198	275
Kansas	5	185	95	67	22	89	719	-	808	929	1,737	249	243	-	244	272
Kentucky	26	94	115	280	111	391	997	-	1,388	865	2,253	241	252	-	249	277
Louisiana	-	10	15	-	-	-	1	170	171	353	524	-	305	340	340	352
Maine	1	11	8	8	4	12	74	-	86	234	320	246	249	-	249	305
Maryland	3	45	44	18	4	22	577	7	606	649	1,255	173	250	329	248	298
Massachusetts	-	35	34	-	-	-	419	-	419	451	870	-	250	-	250	251
Michigan	1	60	47	6	2	8	794	4	806	2,285	3,091	220	252	149	251	284
Minnesota	-	98	59	-	-	-	408	-	408	813	1,221	-	185	-	185	249
Mississippi	-	4	3	-	-	-	28	-	28	94	122	-	242	-	242	229
Missouri	44	240	217	383	118	501	1,552	-	2,053	2,130	4,183	272	236	-	245	296
Montana	-	42	36	-	-	-	244	-	244	222	466	-	235	-	235	249
Nebraska	2	27	27	12	3	15	228	-	243	288	531	284	260	-	262	325
Nevada	-	20	14	-	-	-	156	-	156	142	298	-	245	-	245	336
New Hampshire	-	6	5	-	-	-	67	-	67	125	192	-	237	-	237	247
New Jersey	-	32	30	-	-	-	514	-	514	419	933	-	243	-	243	264
New Mexico	-	68	63	-	-	-	151	-	151	117	268	-	196	-	196	237
New York	2	99	95	13	3	16	1,164	-	1,180	1,821	3,001	240	233	-	234	300
North Carolina	-	135	99	-	-	-	1,178	-	1,178	834	2,012	-	231	-	231	246
North Dakota	-	7	1	-	-	-	3	-	3	1	4	-	237	-	237	223
Ohio	3	202	181	147	20	167	1,586	-	1,753	3,313	5,066	255	246	-	247	289
Oklahoma	2	68	81	23	11	34	693	-	727	670	1,397	257	257	-	257	285
Oregon	2	289	191	6	2	8	922	-	930	466	1,396	195	213	-	213	258
Pennsylvania	11	261	240	275	65	340	2,579	-	2,919	4,575	7,494	267	241	-	244	298
Rhode Island	-	4	2	-	-	-	16	-	16	36	52	-	189	-	189	235
South Carolina	-	21	16	-	-	-	327	-	327	487	814	-	240	-	240	309
South Dakota	-	35	22	-	-	-	226	-	226	314	540	-	246	-	246	270
Tennessee	4	130	127	25	17	42	1,166	-	1,208	1,547	2,755	247	242	-	242	281
Texas	2	243	183	7	1	8	1,391	113	1,512	2,799	4,311	265	252	308	256	324
Utah	1	36	16	3	1	4	150	-	154	192	346	260	195	-	197	325
Vermont	3	37	32	88	22	110	585	-	695	569	1,264	232	247	-	244	245
Virginia	4	155	139	96	19	115	1,563	-	1,678	1,864	3,542	211	243	-	241	281
Washington	1	255	113	2	-	2	753	-	755	401	1,156	30	162	-	162	222
West Virginia	7	54	40	106	31	137	483	-	620	695	1,315	258	238	-	242	253
Wisconsin	1	363	161	1	1	2	1,026	-	1,028	777	1,805	246	195	-	195	239
Wyoming	1	50	13	31	6	37	100	-	137	136	273	240	147	-	172	246
Total or average	162	5,017	3,558	2,038	584	2,622	32,720	422	35,764	47,042	82,806	256	234	315	237	290

TABLE 8-25. - Injury experience and worktime data by general work location at stone quarries and mills in the United States, by State, 1971 - Continued

State	Man-days worked								Man-hours worked							
	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total	Underground mines			Open quarries	Other surface mining	Total mining activities	Mills	Grand total
	Underground	Surface	Total						Underground	Surface	Total					
Alabama	8,381	1,654	10,035	159,502	10,020	179,557	476,044	655,601	67,606	13,332	80,938	1,359,847	106,558	1,547,343	3,900,408	5,447,751
Alaska	-	-	-	69,832	-	69,832	15,833	85,665	-	-	-	558,743	-	558,743	126,660	685,403
Arizona	-	-	-	40,539	-	40,539	107,902	148,441	-	-	-	327,505	-	327,505	863,660	1,191,165
Arkansas	6,325	2,135	8,460	122,574	-	131,034	264,256	395,290	53,108	17,946	71,054	1,076,224	-	1,147,278	2,172,769	3,320,047
California	26,481	6,396	32,877	250,613	224	283,714	1,003,630	1,287,344	212,369	51,229	263,598	2,018,384	1,928	2,283,910	8,089,278	10,373,188
Colorado	14	-	14	69,209	-	69,223	103,259	172,482	112	-	112	565,538	-	565,650	834,582	1,400,232
Connecticut	-	-	-	31,037	-	31,037	58,138	89,175	-	-	-	253,441	-	253,441	466,385	719,826
Florida	-	-	-	322,806	27,326	350,132	521,230	871,362	-	-	-	2,837,048	218,610	3,055,658	4,477,641	7,533,299
Georgia	16,337	3,699	20,036	263,969	-	284,005	485,191	769,196	130,698	29,593	160,291	2,420,019	-	2,580,310	4,130,340	6,710,650
Hawaii	-	-	-	66,193	-	66,193	79,982	146,175	-	-	-	527,254	-	527,254	630,836	1,158,090
Idaho	3,077	769	3,846	31,463	-	35,309	23,140	58,449	24,607	6,152	30,759	254,659	-	285,418	190,434	475,852
Illinois	39,601	10,672	50,273	336,815	-	387,088	587,063	974,151	331,748	88,950	420,698	2,936,656	-	3,357,354	4,809,919	8,167,273
Indiana	1,400	400	1,800	252,298	-	254,098	498,563	752,661	11,200	3,200	14,400	2,182,496	-	2,196,896	4,250,281	6,447,177
Iowa	16,692	7,805	24,497	283,674	-	308,171	383,357	691,528	148,905	75,846	224,751	2,529,352	-	2,754,103	3,240,419	5,994,522
Kansas	16,653	5,468	22,121	174,760	-	196,881	252,440	449,321	148,266	46,303	194,569	1,509,448	-	1,704,017	2,085,078	3,789,095
Kentucky	69,849	24,323	94,172	251,377	-	345,549	239,552	585,101	590,872	206,392	797,264	2,173,456	-	2,970,720	2,034,794	5,005,514
Louisiana	-	-	-	305	57,801	58,106	124,356	182,462	-	-	-	2,441	578,015	580,456	1,043,622	1,624,078
Maine	1,942	1,008	2,950	18,442	-	21,392	71,292	92,684	15,536	8,064	23,600	152,745	-	176,345	573,709	750,054
Maryland	3,109	704	3,813	144,022	2,305	150,140	193,337	343,477	27,584	6,136	33,720	1,239,536	20,748	1,294,004	1,578,502	2,872,506
Massachusetts	-	-	-	104,577	-	104,577	113,303	217,880	-	-	-	856,031	-	856,031	923,057	1,779,088
Michigan	1,320	440	1,760	200,185	597	202,542	647,921	850,463	10,560	3,520	14,080	1,661,037	4,764	1,679,881	5,321,189	7,001,070
Minnesota	-	-	-	75,444	-	75,444	202,226	277,670	-	-	-	655,649	-	655,649	1,758,328	2,413,977
Mississippi	-	-	-	6,769	-	6,769	21,562	28,331	-	-	-	56,759	-	173,018	229,777	
Missouri	103,456	32,651	136,107	366,272	-	502,379	631,135	1,133,514	830,007	263,231	1,093,238	3,079,681	-	4,172,919	5,105,113	9,278,032
Montana	-	-	-	57,356	-	57,356	55,236	112,592	-	-	-	458,844	-	458,844	441,892	900,736
Nebraska	3,437	818	4,255	59,385	-	63,640	93,484	157,124	34,372	8,180	42,552	528,198	-	570,750	772,934	1,343,684
Nevada	-	-	-	38,236	-	38,236	47,754	85,990	-	-	-	325,815	-	325,815	385,972	711,787
New Hampshire	-	-	-	15,847	-	15,847	30,937	46,784	-	-	-	131,537	-	131,537	252,170	383,707
New Jersey	-	-	-	124,849	-	124,849	110,684	235,533	-	-	-	1,015,205	-	1,015,205	938,512	1,953,717
New Mexico	-	-	-	29,545	-	29,545	27,751	57,296	-	-	-	237,333	-	237,333	223,231	460,564
New York	3,106	726	3,832	271,707	-	275,539	546,148	821,687	24,846	5,808	30,654	2,225,538	-	2,256,192	4,422,986	6,679,178
North Carolina	-	-	-	272,422	-	272,422	205,265	477,687	-	-	-	2,347,291	-	2,347,291	1,723,334	4,070,625
North Dakota	-	-	-	710	-	710	223	933	-	-	-	5,678	-	5,678	1,784	7,462
Ohio	37,012	5,596	42,608	389,707	-	432,315	958,119	1,390,434	296,095	44,767	340,862	3,213,353	-	3,554,215	7,707,737	11,261,952
Oklahoma	5,922	2,824	8,746	178,121	-	186,867	190,958	377,825	48,912	24,384	73,296	1,476,522	-	1,549,818	1,563,273	3,113,091
Oregon	1,162	395	1,557	196,791	-	198,348	120,295	318,643	9,295	3,160	12,455	1,625,879	-	1,638,334	966,738	2,605,072
Pennsylvania	72,708	17,986	90,694	620,856	-	711,550	1,361,713	2,073,263	594,344	156,015	750,359	5,221,305	-	5,971,664	11,160,697	17,132,361
Rhode Island	-	-	-	3,029	-	3,029	8,475	11,504	-	-	-	24,280	-	24,280	67,800	92,080
South Carolina	-	-	-	78,478	-	78,478	150,293	228,771	-	-	-	701,133	-	701,133	1,262,964	1,964,097
South Dakota	-	-	-	55,682	-	55,682	84,740	140,422	-	-	-	462,428	-	462,428	697,932	1,160,360
Tennessee	6,020	4,354	10,374	281,954	-	292,328	434,013	726,341	53,207	41,723	94,930	2,427,225	-	2,522,155	3,628,353	6,150,508
Texas	1,850	270	2,120	350,605	34,782	387,507	906,636	1,294,143	16,650	2,430	19,080	3,117,272	417,385	3,553,737	7,550,611	11,104,348
Utah	780	260	1,040	29,227	-	30,267	62,315	92,582	6,240	2,080	8,320	236,663	-	244,983	498,385	743,368
Vermont	20,430	5,084	25,514	144,378	-	169,892	139,521	309,413	163,440	40,672	204,112	1,160,520	-	1,364,632	1,137,249	2,501,881
Virginia	19,763	4,486	24,249	380,022	-	404,271	524,405	928,676	158,106	35,887	193,993	3,222,065	-	3,416,058	4,366,320	7,782,378
Washington	59	-	59	121,937	-	121,996	88,904	210,900	464	-	464	976,659	-	977,123	711,379	1,688,502
West Virginia	27,350	8,013	35,363	114,928	-	150,291	175,830	326,121	218,536	66,104	284,640	953,754	-	1,238,394	1,422,884	2,661,278
Wisconsin	246	246	492	199,655	-	200,147	185,685	385,832	1,968	1,968	3,936	1,753,760	-	1,757,696	1,543,363	3,301,059
Wyoming	7,440	1,440	8,880	14,671	-	23,551	33,461	57,012	59,520	11,520	71,040	127,239	-	198,279	275,426	473,705
Total	521,922	150,622	672,544	7,672,775	133,055	8,478,374	13,647,557	22,125,931	4,289,173	1,264,592	5,553,765	65,209,445	1,348,008	72,111,218	112,503,948	184,615,166

TABLE B-26. - Injury experience and worktime data on officeworkers at stone quarries and mills in the United States, by kind of stone, 1971

Kind of stone	Injuries			Frequency rates per million man-hours			Severity rates per million man-hours			Average men working daily	Average days active	Man-days worked	Man-hours worked
	Fatal	Nonfatal	Total	Fatal	Nonfatal	Total	Fatal	Nonfatal	Total				
Cement 1/	-	1	1	-	0.21	0.21	-	2	2	2,252	264	593,545	4,756,427
Granite	-	-	-	-	-	-	-	-	-	556	253	140,652	1,180,956
Limestone	-	3	3	-	.47	.47	-	23	23	3,016	254	766,084	6,329,651
Limestone (chief product, lime)	-	1	1	-	.63	.63	-	1	1	767	258	197,996	1,595,458
Marble	-	-	-	-	-	-	-	-	-	178	253	45,064	362,114
Sandstone	-	3	3	-	3.38	3.38	-	34	34	441	249	109,679	886,764
Slate	-	-	-	-	-	-	-	-	-	53	249	13,194	103,378
Traprock	-	2	2	-	3.32	3.32	-	22	22	320	233	74,456	602,188
Miscellaneous stone	-	-	-	-	-	-	-	-	-	131	240	31,388	254,198
Total or average	-	10	10	-	.62	.62	-	12	12	7,714	256	1,972,058	16,071,134

1/ Includes limestone or other stones used in manufacturing cement.

TABLE B-27. - Injury experience and worktime data on officeworkers at stone quarries and mills in the United States, by State, 1971

State	Injuries			Frequency rates per million man-hours			Severity rates per million man-hours			Average men working	Average days active	Man-days worked	Man-hours worked
	Fatal	Nonfatal	Total	Fatal	Nonfatal	Total	Fatal	Nonfatal	Total				
Alabama	-	-	-	-	-	-	-	-	-	286	259	74,097	593,274
Alaska	-	-	-	-	-	-	-	-	-	1	240	240	1,920
Arizona	-	-	-	-	-	-	-	-	-	32	298	9,526	76,612
Arkansas	-	-	-	-	-	-	-	-	-	117	262	30,675	247,846
California	-	-	-	-	-	-	-	-	-	465	258	119,747	962,102
Colorado	-	1	1	-	8.10	8.10	-	105	105	62	251	15,563	123,533
Connecticut	-	1	1	-	12.13	12.13	-	12	12	41	255	10,465	82,410
Florida	-	1	1	-	2.73	2.73	-	14	14	174	259	44,986	366,021
Georgia	-	1	1	-	2.13	2.13	-	19	19	223	261	58,094	469,973
Hawaii	-	-	-	-	-	-	-	-	-	46	249	11,469	91,878
Idaho	-	-	-	-	-	-	-	-	-	10	232	2,316	18,145
Illinois	-	1	1	-	1.17	1.17	-	8	8	387	270	104,647	854,369
Indiana	-	1	1	-	1.30	1.30	-	139	139	355	262	92,907	770,293
Iowa	-	-	-	-	-	-	-	-	-	206	230	47,316	395,991
Kansas	-	-	-	-	-	-	-	-	-	134	260	34,867	287,484
Kentucky	-	1	1	-	1.75	1.75	-	60	60	261	266	69,533	570,744
Louisiana	-	-	-	-	-	-	-	-	-	47	257	12,067	96,533
Maine	-	-	-	-	-	-	-	-	-	34	257	8,736	71,052
Maryland	-	-	-	-	-	-	-	-	-	121	260	31,489	257,905
Massachusetts	-	-	-	-	-	-	-	-	-	119	231	27,532	219,403
Michigan	-	-	-	-	-	-	-	-	-	351	276	96,802	776,222
Minnesota	-	-	-	-	-	-	-	-	-	154	243	37,362	315,411
Mississippi	-	-	-	-	-	-	-	-	-	6	236	1,414	11,318
Missouri	-	1	1	-	.93	.93	-	11	11	514	258	132,544	1,072,070
Montana	-	-	-	-	-	-	-	-	-	25	235	5,884	47,072
Nebraska	-	-	-	-	-	-	-	-	-	39	249	9,694	83,198
Nevada	-	-	-	-	-	-	-	-	-	19	261	4,961	39,688
New Hampshire	-	-	-	-	-	-	-	-	-	32	257	8,211	66,579
New Jersey	-	1	1	-	5.03	5.03	-	5	5	116	204	23,711	198,758
New Mexico	-	-	-	-	-	-	-	-	-	15	253	3,795	30,360
New York	-	-	-	-	-	-	-	-	-	277	251	69,622	562,269
North Carolina	-	-	-	-	-	-	-	-	-	114	247	28,103	239,953
Ohio	-	1	1	-	.73	.73	-	7	7	675	253	170,614	1,376,835
Oklahoma	-	-	-	-	-	-	-	-	-	66	259	17,080	141,451
Oregon	-	-	-	-	-	-	-	-	-	43	237	10,198	80,730
Pennsylvania	-	-	-	-	-	-	-	-	-	686	256	175,342	1,426,929
Rhode Island	-	-	-	-	-	-	-	-	-	5	215	1,075	8,050
South Carolina	-	-	-	-	-	-	-	-	-	48	259	12,418	109,271
South Dakota	-	-	-	-	-	-	-	-	-	43	250	10,765	90,222
Tennessee	-	-	-	-	-	-	-	-	-	192	250	47,996	405,493
Texas	-	-	-	-	-	-	-	-	-	419	257	107,542	885,533
Utah	-	-	-	-	-	-	-	-	-	20	233	4,667	36,602
Vermont	-	-	-	-	-	-	-	-	-	23	254	5,851	46,301
Virginia	-	-	-	-	-	-	-	-	-	366	259	94,646	774,251
Washington	-	-	-	-	-	-	-	-	-	83	276	22,917	182,715
West Virginia	-	-	-	-	-	-	-	-	-	102	253	25,792	208,427
Wisconsin	-	-	-	-	-	-	-	-	-	146	229	33,499	270,996
Wyoming	-	-	-	-	-	-	-	-	-	14	234	3,281	26,942
Total or average	-	10	10	-	.62	.62	-	12	12	7,714	256	1,972,058	16,071,134

APPENDIX C.--QUESTIONNAIRE USED

Form 6-1431-A
(October 1968)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Budget Bureau No. 42-R0090.
Approval expires August 1971.

INJURIES AND EMPLOYMENT IN QUARRIES AND MILLS

(Includes reporting of all dimension, crushed or broken stone operations, and cement and lime plants)

(Please correct if name or address has changed.)

Section 13 of the Federal Metal and Nonmetallic Mine Safety Act (30 U.S.C. 721-740) requires the full and accurate reporting of the information requested on this form concerning accidents, injuries, and occupational diseases, and related data at your mineral extractive and milling or processing operation.

I. EMPLOYMENT AND INJURIES

1. EMPLOYMENT.—Report data for all men engaged in production, exploration, development, overburden removal, stockpile, construction, maintenance, and repair work—including supervisory and technical personnel at the operation. Include proprietors and firm members (owners, partners, or operators) performing manual labor or supervisory duties. Report separate data on all officeworkers at the operation.

DEPARTMENT	(a) Average Number of Men Working on Active Days	(b) Days Active During Year	(c) Total Man-Shifts Worked During Year	(d) Length of Shift (Hours)	(e) Total Man-Hours Worked During Year	(f) Summary of Work Injuries		(g) Production* (short tons)
						Fatal	Nonfatal	
AT UNDERGROUND QUARRY OR MINE [1] (01) Underground								
(02) Surface shops, yards, etc., at underground quarry or mine								
AT OPEN QUARRY (03) Open quarry [2]								
OTHER SURFACE MINING (06) Dredging, processing, maintenance, etc., aboard or ashore								
AT MILL (30) Processing plant [3]								
AT OFFICE (00) Officeworkers [4]								

[1] *Include all underground operations up to but excluding primary (coarse) crusher. In conjunction with cement plants only, include information on captive underground clay and shale operations.*

[2] *Include all open quarry and overburden removal operations up to but excluding the primary coarse crusher. In conjunction with cement plants only, include information on captive clay and shale pits. Include shops, yards, etc., that are attached and only serve the open quarry.*

[3] *Include all processing plant operations (crusher, cement mill, limekiln, rock dressing, etc.) beginning with the primary crusher through to storage or transportation of product from processing plant. Include all surface shops, yards, or other auxiliary work that service the processing plant or that are not specifically attached to the open or underground quarry.*

[4] *Include all officeworkers at the quarry and processing plant.*

* *Include production of both crushed and broken, and dimension stone, and shell, marl, or other stone material extracted. Convert all units of measure to short tons, or specify units reported:* _____

2. How many quarries _____ (number) and mills _____ (number) are included in the employment data? Give name(s) and location(s):

QUARRY NAME	COUNTY	STATE	MILL NAME	COUNTY	STATE

3. INJURIES. If you had NO DISABLING WORK INJURIES** during the year, check block ☐; otherwise, please complete column f, Summary of Work Injuries, above, also list them on the reverse side of this page.

**A DISABLING WORK INJURY is one which occurs in the course of and arises out of employment, irrespective of whether the injury is compensable and whether or not your establishment was operating on the days following the date of injury. The term "injury" includes occupational diseases. A disabling work injury is one which results in death or permanent impairment or which temporarily disables the worker for 1 full day or more after the day of injury (USAS Z16.1).

4. Please answer the questions which apply to your operation.

(a) Kind of rock quarried _____

(b) Type of processing operation(s):
(1) Crusher ☐; (2) Sawing and finishing plant ☐; (3) Granules and flour plant ☐; (4) Cement mill ☐; (5) Limekiln ☐

5. If any new quarries or mines were operated in your vicinity during the past year, give names and addresses of the operators:

Signature	Title	Date

(OVER)

INJURY DATA

List below every disabling work injury (see definition on front side of form) which occurred during the year to all classes of your employees included in the employment data. Write in a description of the accident and then fill in blocks above the description that are applicable to the accident.

CASE NO.	DEPARTMENT (List department in which accident occurred)	SOURCE OF INJURY (Object, substance, exposure, or bodily motion which directly produced or inflicted the injury, such as timber, chemicals, welder's flash, or lifting, respectively)	EXTENT OF DISABILITY (Please indicate the extent of disability by an entry in one of the columns below)				PART OF BODY INJURED (Be specific, such as great toe, left foot, index finger, right hand, etc.)	NATURE OF INJURY (Amputation, bruise, strain, dermatitis, etc.)
			Death (Enter a check-mark)	Permanent-total disability *	Permanent-partial disability (Please indicate percent loss and part of body affected) *	Temporary-total disability (Enter time lost in calendar days)		
Example	Crusher	Rock				22	Left Shoulder	Broken bone
Describe the accident: Employee was barring down in hopper to free hung feed to crusher. Hang up moved suddenly and a large rock glanced off the bar and hit employee on left shoulder fracturing collar bone.								
1.								
Describe the accident:								
2.								
Describe the accident:								
3.								
Describe the accident:								
4.								
Describe the accident:								
5.								
Describe the accident:								
6.								
Describe the accident:								
7.								
Describe the accident:								
8.								
Describe the accident:								

* If more convenient, enter the time charge for each injury as established by the American Standards Association, in accordance with instructions from USAS Z16.1.

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